Implementation Plan

Task Force on Oil Spill Preparedness in the Upstream Petroleum Industry

IPAC

INDEPENDENT PETROLEUM ASSOCIATION OF CANADA

CPA CANADIAN PETROLEUM ASSOCIATION

Task Force on Oil Spill Preparedness (TFOSP)

Implementation Plan

The Canadian Petroleum Association

and

The Independent Petroleum Association of Canada

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October 30, 1990

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Gentlemen:

I would like to present to you the Implementation Plan of the Task Force on Oil Spill Preparedness (TFOSP).

This plan was developed as a mechanism for implementing the 33 recommendations of TFOSP. It describes how the recommendations developed by TFOSP will be incorporated into the daily business activities of CPA and IPAC member-companies.

The plan identifies the appropriate groups within industry to carry out the implementation of each recommendation, the government interfaces, the schedule for implementation and an indication of the cost for putting each recommendation into place. It also recommends that a vigorous monitoring program be developed to follow and report on the status of implementation for these recommendations.

I would like to take this opportunity to thank you and your Boards for your continued support. Only with your involvement can our industry move toward improving our state of preparedness for oil spill response.

Yours truly,

J. Sherrold Moore
Chairman, Task Force on Oil Spill Preparedness
Implementation Committee

Executive Summary

The report of the Task Force on Oil Spill Preparedness in the Upstream Petroleum Industry (TFOSP) was published by the Canadian Petroleum Association (CPA) and the Independent Petroleum Association of Canada (IPAC) in November 1989. The report assessed the upstream industry's capability and readiness to deal with major and minor spill incidents both offshore in the Arctic and East Coast exploration areas and onshore under the wide range of operating conditions experienced in Canada. The report was well received by member companies, government and the public. It showed the industry's capability for self-assessment and its commitment to safe operation and environmental protection.

TFOSP made more than 33 recommendations for improvements or initiatives in operations, training, equipment, planning, and research and development in both the onshore and offshore areas. These recommendations, including the associated costs (approximately $13-15 M), were endorsed by the CPA and IPAC governing boards, and the TFOSP program moved on to the implementation phase. To plan how to put these recommendations into practice, CPA and IPAC formed an Implementation Committee, comprised of representatives of member companies. Working Groups were struck to examine the TFOSP recommendations for the onshore and offshore in the following specific areas: planning, prevention, equipment, training, and research and development. CPA member companies were primarily responsible for the offshore component, and IPAC and CPA jointly were responsible for the onshore.

The Working Groups were charged with developing implementation procedures, identifying responsible agencies and government interfaces, and estimating costs and timing schedules. This report is a compilation of the findings of the working groups, and it presents a plan for implementing and incorporating the recommendations of TFOSP into company and industry association activities over the next five years.

The costs of these proposals are significant; to implement all of the TFOSP recommendations, the industry would spend about $13-15 million dollars over the next 5-year period. These expenditures would be made through normal budgetary procedures and with approvals of the appropriate industry authorities.

Executive Summary continued

This is a *plan* for implementation of the TFOSP recommendations. It identifies responsible agencies and their objectives and roles in contributing to the success of TFOSP and the enhanced preparedness of the industry to deal with spill incidents. With approval by the CPA and IPAC boards, work has begun on implementation of these recommendations. Implementation of recommendations that apply to both the onshore and offshore industries is handled jointly wherever possible to avoid duplication of effort.

Monitoring the progress of implementation is also an important issue for the industry. TFOSP showed government regulators that the industry could undertake critical self-assessment. To maintain this initiative, industry must be able to demonstrate the progress it makes putting TFOSP recommendations into effect. This requires a well-organized formal system for tracking the achievements of the industry in specific areas. The Prairie Regional Oil Spill Containment and Recovery Advisory Committee (PROSCARAC), on behalf of the onshore CPA and IPAC member companies, and the newly formed Frontier Oil Spill Committee, for the offshore member companies, will define systems for monitoring the progress of implementation in each of these areas.

This Implementation Plan deals only with the Canadian upstream petroleum industry. Independently but concurrently, the downstream industry, which includes refinery operations, shipping (including tankers), and transportation, is undergoing a similar process.

Acknowledgements

This is to acknowledge the many individuals and companies who participated in preparing this plan of implementation.

A number of companies, members of the Canadian Petroleum Association and the Independent Petroleum Association of Canada, participated in this work under the chairmanship of Mr. Sherrold Moore, Amoco Canada Petroleum Company Ltd.

Among those who contributed significantly to the Task Force effort were Dr. Dick Stokes, Trans Mountain Pipe Line Company Ltd.; Mr. Don Barkwell, Poco Petroleums Ltd.; Mr. Bill Anderson, Inverness Petroleum Ltd.; and Mr. Bob Feick, Independent Petroleum Association of Canada.

Individuals from many companies participated in the two committees that were formed to prepare the onshore and offshore implementation plans. In this regard, special recognition is given to Messrs. Dan Claypool and Cal Sikstrom of Esso Resources Canada Ltd. and Mr. Nick Vanderkooy, Amoco Canada Petroleum Company Ltd., who were chairmen of these committees.

Dominion Ecological Consulting Ltd. (Dr. Ron Wallace and Ms. Bonnie Gray) provided invaluable support in the preparation of the implementation plan.

Finally the assistance of a number of individuals from the Canadian Petroleum Association is acknowledged as follows: Messrs. Jim Swiss, Douglas Bruchet, Barry Virtue, and Ian Smyth.

List of Acronyms

APOA	Arctic Petroleum Operators Association
API	American Petroleum Institute (US)
BCMPMR	British Columbia Ministry of Petroleum and Mineral Resources
BPT	Best Practical Technology
BSOSC	Beaufort Sea Oil Spill Cooperative
CCG	Canadian Coast Guard
CNOPB	Canada Newfoundland Offshore Petroleum Board
CNSOPB	Canada Nova Scotia Offshore Petroleum Board
COGLA	Canada Oil and Gas Lands Administration
COOSRA	Canadian Offshore Oil Spill Research Association
CPA	Canadian Petroleum Association
CPPI	Canadian Petroleum Products Institute
CSA	Canadian Standards Association
CWPA	Canada West Petroleum Association
DND	Department of National Defence
DOE	Department of Environment
EETD	Environmental Emergency Technology Division
EPA	Environmental Protection Agency
EPOA	Eastcoast Petroleum Operators Association
ERCB	Energy Resources Conservation Board
ESRF	Environmental Studies Research Funds
ESRI	Eastcoast Spill Response Inc.
IPAC	Independent Petroleum Association of Canada
MEMC	Marine Emergency Management Course
MMS	Minerals Management Service (US)
NEELS	National Emergency Equipment Locator System
NET	(Imperial Oil) National Emergency Team
OSRL	Oil Spill Response Ltd.
OSCAR	Oil Spill Containment and Recovery
PACE	Petroleum Association for Conservation of the Canadian Environment
PIMEC	Petroleum Industry Marine Emergency Committee
PIRO	Petroleum Industry Response Organization (US)
PITS	Petroleum Industry Training Service
PROSCARAC	Prairie Regional Oil Spill Containment and Recovery Advisory Committee
PROSCARAC ED COM	Prairie Regional Oil Spill Containment and Recovery Advisory Committee Education and Communications Sub-Committee
RCMP	Royal Canadian Mounted Police
RSRS	Rapid Spill Response Support
TFOSP	Task Force on Oil Spill Preparedness

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Section 1

Background

1.1 Introduction

In November 1989, the Canadian Petroleum Association (CPA) and the Independent Petroleum Association of Canada (IPAC) jointly published the Task Force Report on Oil Spill Preparedness in the Upstream Petroleum Industry (TFOSP). This report assessed the Canadian upstream industry's (offshore and onshore) current state of preparedness for dealing with oil spills resulting from exploration and production activities.

The report recommended improvements in existing training and response procedures, acquisition of new equipment, and research and development into new or improved technology to deal more effectively with offshore and onshore spills. These recommendations represent a proposed expenditure of $13 to $15 million over the next five years.

The TFOSP report was widely accepted by industry members and by government. It made a clear statement to the public that the upstream petroleum industry was firmly in control of the question of oil spill preparedness, capable of self-assessment, and ready to deal with any apparent shortcomings.

Implementation of the TFOSP recommendations and incorporation of the recommendations into member companies' activities is the logical next step for CPA and IPAC. This report outlines a plan for accomplishing that objective. The report deals separately with the onshore and offshore components of the industry and follows the structure of the TFOSP report by focusing on five major areas:

- planning
- prevention
- equipment
- training
- research and development.

In each of these areas, each TFOSP recommendation is reviewed, an implementation procedure is suggested, and the responsible organization and government interfaces are identified. Timing for initiation and completion, monitoring procedures, and projected costs of implementation are also given. This information is summarized in Tables A through I in Appendix 1. Parallel onshore and offshore recommendations will be implemented in a coordinated manner.

1.2 Review of TFOSP

In 1989, large offshore oil spills in Alaska and near Vancouver Island prompted CPA and IPAC member companies to undertake an evaluation of their state-of-preparedness in handling spills of all sizes and sources. The TFOSP report was the product of that evaluation. The offshore component of TFOSP dealt with spills resulting from blowout incidents during exploration in offshore frontier areas in the north and off the east coast. The onshore component focused on spills resulting from onshore exploration and development drilling, production facilities, tanker truck traffic, major pipelines, and a ship loading terminal (from pipeline). The study specifically excluded consideration of tanker spills and spills associated with marketing and refining activities. these aspects were the subject of another study completed by the Canadian Petroleum Products Institute (CPPI).

TFOSP concluded that the offshore industry in the Beaufort Sea and East Coast areas:

> *"...was prepared and equipped to handle most blow-out spill incidents in the Beaufort or Scotian shelf areas. In the Beaufort, the industry could mount a significant and relatively successful spill response with existing equipment and infrastructure. Most oil that remained could be burned with little environmental harm (although sensitive coastal areas may have to be protected). On the Scotian Shelf, very light oil and condensates would evaporate and dissipate naturally with little environmental hazard. In spite of this, there is still a need to upgrade the type and amount of equipment available to operators in these areas.*

Environmental conditions on the Grand Banks however are more difficult, and TFOSP concluded:

> *"An oil spill on the Grand Banks – characterized by heavy seas, frequent bad weather, and waxy oil – could, under certain circumstances, mean poor oil recovery conditions. Today, limited logistical support for the open water containment and recovery systems, equipment limitation and the resultant delay in responding could produce a large spill of weathered oil that would be difficult if not impossible to recover. There is a need to improve logistics and equipment in this area."*

Onshore, TFOSP concluded that:

> *"... the [onshore] industry is prepared and equipped to manage and control most types of spills on land, in small rivers, and in bodies of water. [Industry is advised] to improve the handling of heavy oil and condensate spills. The study reports that equipment needs to be developed to handle spills into fast moving or ice-congested waters and in muskeg terrain where access is difficult."*

1.3 Major TFOSP Recommendations

The major recommendations of TFOSP are as follows:

Prevention

- Companies should conduct assessments of all facilities and activities to determine potential spill sources so that preventive actions can be identified and implemented.
- Current leak detection systems should be evaluated, and where deficient, research and development programs should be implemented to improve their efficiency.
- When oil spills occur, they should be evaluated to determine their cause and the results of the evaluation should be incorporated into operating procedures.

Equipment

- In offshore areas, response capabilities should be consistent with the standards of best practical technology (BPT), and industry should work together with the Canadian Coast Guard to maximize equipment compatibility and effectiveness.
- In onshore areas, equipment requirements at special sites and remote locations should be determined, and where deficiencies are identified, the necessary equipment packages should be developed. In addition, work should be undertaken to ensure compatibility of equipment in the various onshore oil spill cooperatives.

Contingency Planning

- Company and cooperative plans must be reviewed at least annually in conjunction with simulation and communication exercises.

Training

- Companies must recognize that effective oil spill training is not limited to equipment deployment exercises, but should also include spill prevention, contingency planning, and environmental awareness. All staff having responsibilities for spill response should have specific training related to their functions during an actual emergency.

Management Systems

- All levels of management should understand their responsibilities for involvement in oil spill response and should participate in crisis management training specifically related to spill response management.

1.3 Major TFOSP Recommendations continued

Government Liaison

- Memoranda of Understanding should be developed between industry and appropriate government agencies to identify areas of responsibility and cooperation during spill response efforts. A "single window approach" for interacting with government should be identified.

Research and Development

- The industry should continue to support its historical commitment to oil spill research and development activities. Programs should be developed to address the issues (both offshore and onshore) that have been identified as requiring further work.

Implementation

- CPA and IPAC should establish an implementation committee for incorporating these recommendations into member companies activities. This committee will be chaired jointly by senior representatives of CPA and IPAC and will have wide representation from member companies. It will develop mechanisms for ensuring that the recommendations made in the TFOSP report are dealt with in an appropriate manner by member companies.

1.4 Implementation Committee Structure and Function

A TFOSP Implementation Senior Standing Committee was formed through CPA and IPAC to prepare the plan for implementation of the TFOSP recommendations (see Figure 1). The offshore and onshore TFOSP recommendations were dealt with by separate committees working under the Senior Standing Committee. The Offshore and Onshore Implementation Committee structures are illustrated in Figures 2 and 3. Working Groups of 3 to 5 members each were struck by each Committee to examine the recommendations in five specific areas - Planning, Prevention, Equipment, Training, and Research and Development.

Each working group was asked to do the following:

- review the TFOSP recommendations in its area
- suggest mechanisms for their implementation
- identify responsible industry organizations
- suggest possible government interfaces
- discuss timing for initiation and completion of implementation
- report on the present status of implementation, if any
- discuss monitoring mechanisms, and
- estimate the cost of implementation and identify funding sources.

Sections 2 and 3 of this report present the strategies developed by the offshore and onshore committees, respectively. In the text, each TFOSP recommendation is reproduced at the left side of the page. On the right side of the same page, a corresponding discussion of the recommendation and proposed implementation procedure is given. Recommendations are numbered sequentially from 1 to 45 and, for each, a page reference is given to refer the reader back to the original TFOSP report. The findings of each committee are summarized in Tables A through I in Appendix 1.

The costs of implementation are summarized in Section 4, and proposed monitoring plans are discussed in Section 5.

Figure 1

TFOSP Implementation
Senior Standing Committee Membership

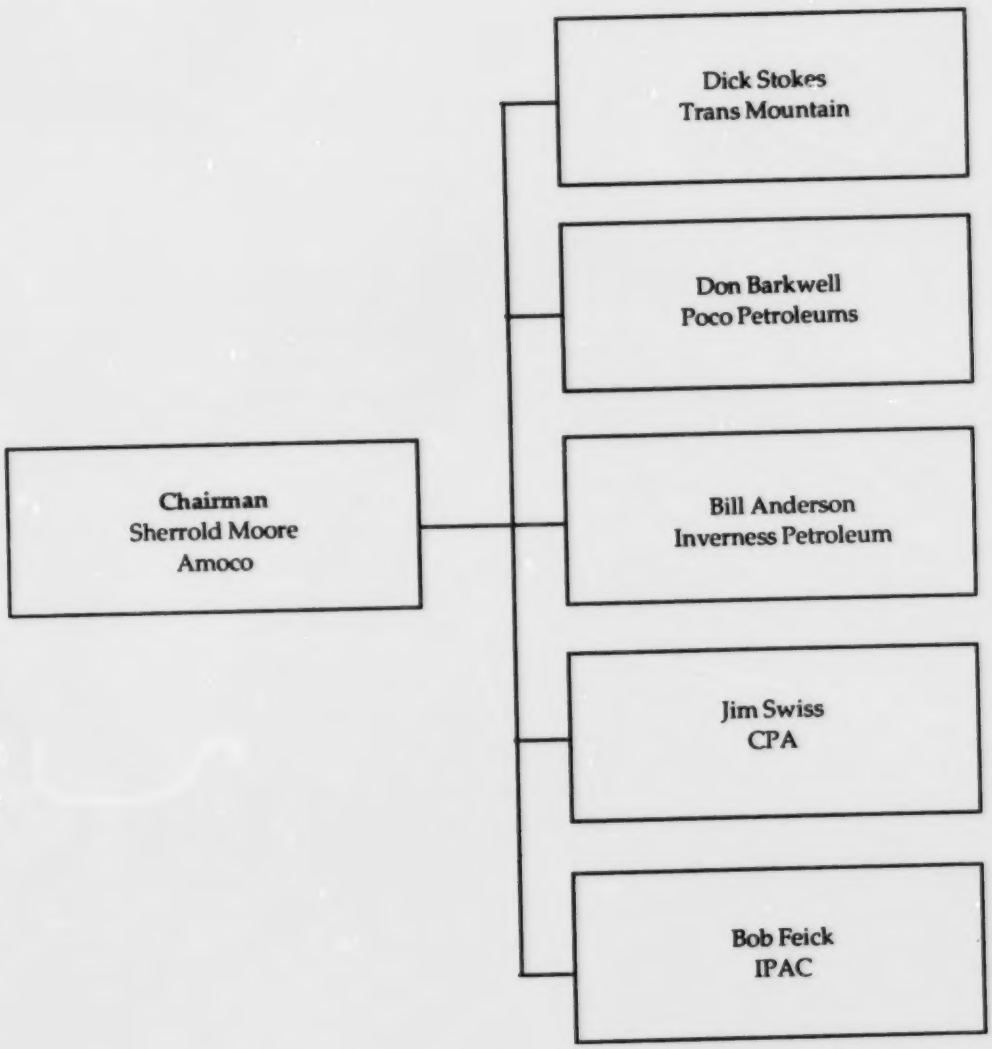
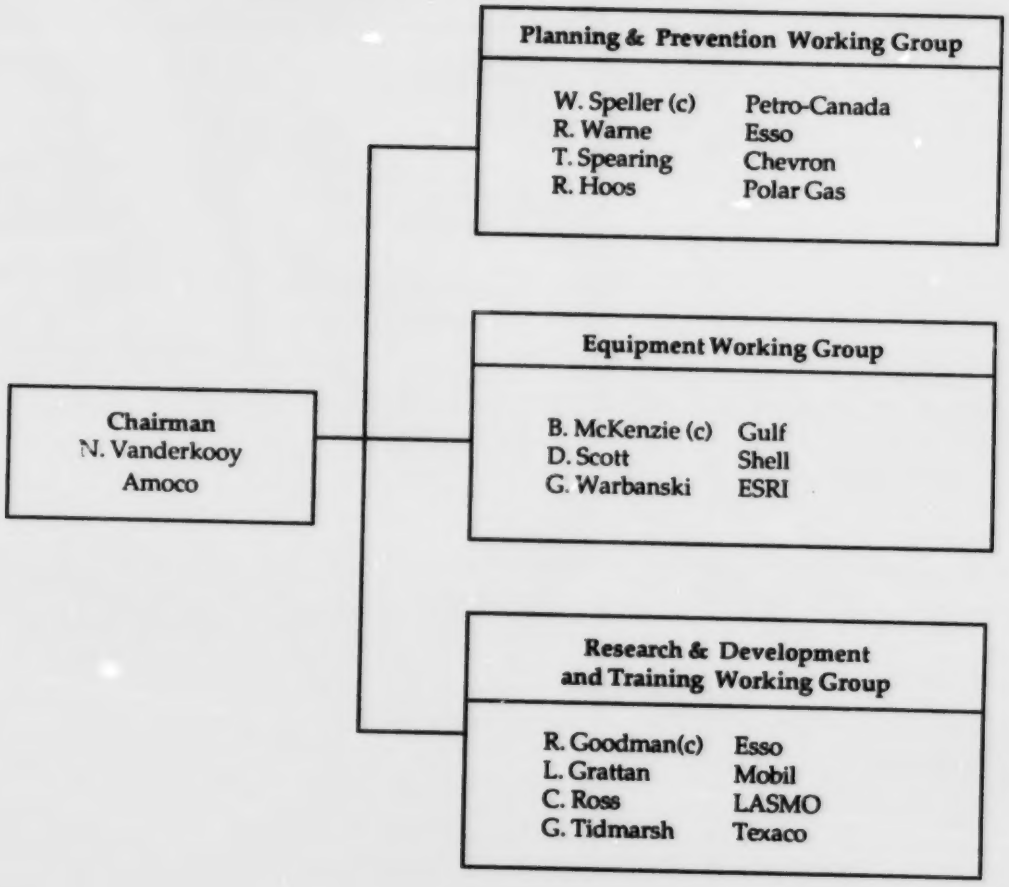


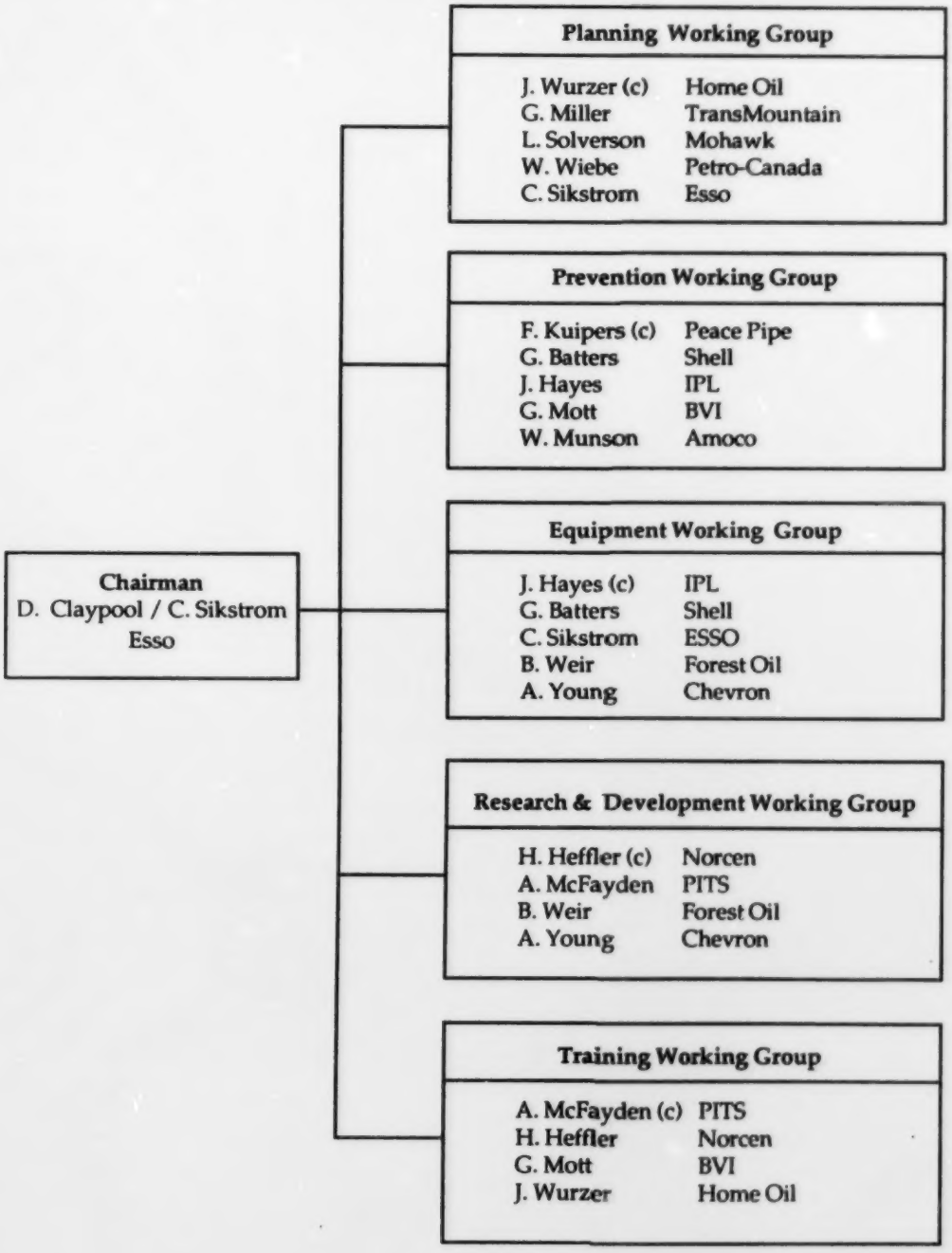
Figure 2
TFOSP Implementation
Offshore Committee Structure and Membership



(c) – Working Group Chairman

Figure 3

TFOSP Implementation
Onshore Committee Structure and Membership



(c) – Sub-Committee Chairman

Section 2

Implementation of Offshore Recommendations

Preamble

In order to implement the Offshore recommendations in TFOSP more effectively, it is suggested that a new Frontier Oil Spill Committee be established. This committee would have representation from all CPA member companies having involvement in Frontier Lands. Establishment of the committee and its terms of reference will be the responsibility of the present CPA Frontier Environment Committee.

2.1 Contingency Plans

Recommendation 1

(see S. 7.2.1, p 60 TFOSP Report)

Companies should conduct assessments to identify anticipated manpower and other resources required to carry out prolonged and extensive oil spill response operations.

Recommendation 2

(see S. 7.2.1, p 60 TFOSP Report)

All key positions in contingency plans should have qualified, alternate/relief members identified.

Recommendation 3

(see S. 7.2.1, p 60 TFOSP report)

For ongoing and/or extensive response operations, appropriate plans for delegation of authority, responsibility and tasks must be developed.

Recommendation 4

(see S. 7.2.1, p 60 TFOSP Report)

Contingency plans should be tested on a regular basis in company-simulated exercises involving all response team members. The exercises should focus on realistic scenarios.

Discussion

TFOSP Recommendations #1-6 focus on the key elements of a contingency plan and methods of testing the effectiveness of that plan. Recommendation #12, regarding development of a rapid spill response support (RSRS) listing (discussed under section 2.4 Additional Skilled Manpower), is also relevant to these initiatives.

The development of Guidelines for offshore contingency planning is the preferred means of ensuring consistency among member companies and over time, incorporation of these recommendations into contingency planning. This approach has the added attraction of providing a consistent measure, endorsed by the Canadian Petroleum Association (CPA) member companies, against which to monitor the implementation of these recommendations. The incentive to comply would be provided both through the obligation of member companies to adopt CPA policy and through expectations of regulators that the guidelines will be adhered to in seeking approval to operate.

Section 5 of the CPA/IPAC Environmental Code of Practice deals with emergency response. It would seem appropriate to develop contingency planning guidelines under this section of the Code, similar to the development of environmental audit and public consultation guidelines under their respective sections.

The need for a similar initiative directed at conventional mainland operations should be evaluated.

In order to prepare the material required for the development of Guidelines, it is important to consult government agencies regarding their contingency plans. Prior to 1985, the CPA and Canada Oil and Gas Lands Administration (COGLA) held meetings and established contingency plan guidelines jointly. Since then, many changes have taken place to the contingency plans prepared by companies, and the plans have had government approval on a company-by-company basis.

The CPA is very knowledgeable and capable in the preparation of contingency plans and is in the best position to initiate dialogue with government. This dialogue is best carried out based on a comprehensive oil spill contingency plan model prepared by industry.

2.1 Contingency Plans continued

Recommendation 5

(see S. 7.2.1, p 60 TFOSP Report)

Operators should implement "surprise" communications and mobilization exercises. These should involve regulatory agencies and other operators where appropriate.

Recommendation 6

see S. 7.2.1, p 60 TFOSP Report)

Operators should participate in "paper" exercises with regulators to test linkages between company contingency plans and government plans.

Implementation

The following procedure should be followed by CPA in discussions with government leading to the preparation of oil spill contingency plan guidelines.

i) Initially, CPA should meet with government agencies to propose the joint review of oil spill contingency plans along with public interest groups and other stakeholders. The initial meeting should be associated with overall oil spill response policy discussions between CPA and government.

ii) Following an agreement to review oil spill contingency plan requirements, CPA should contract a consultant to develop a comprehensive working model incorporating all aspects of oil spill contingency planning, policy, procedure, layout, exercising and auditing. This draft industry model, estimated to cost about $25K to prepare, would serve as the basis for industry/government/public discussions. This model must consider the comprehensive global requirements of contingency planning as well as the specific needs of the operator at the beginning of the emergency.

iii) The review of the contingency plan model should take the form of an open dialogue involving industry, government and public stakeholders, similar to the discussions that took place over the CPA/IPAC Environmental Code of Practice several years ago. A meeting of this type is estimated to cost about $30-40K. In addition to managing this meeting, the consultant would also work with CPA following the meeting to finalize the Guidelines at an additional cost of about $10K.

CPA should, in 1990, prepare a scope of work and hire a consultant to prepare the oil spill contingency plan model. At the same time, it is anticipated that industry/government meetings would be undertaken to initiate policy discussions on oil spill planning and response including the need for industry/government and public stakeholders to review an oil spill contingency plan model.

CPA would undertake the management of the consultant contract with the direction and support of a working group composed of CPA company members.

All CPA recommendations in Section 7.2.1 of the TFOSP report should be addressed in CPA Oil Spill Contingency Plan Guidelines, with the exception of exercises which must remain a responsibility of individual companies, subject to government regulations or guidelines.

Responsible Organization: CPA, BSOSC, ESRI, individual companies

2.2 Communications Systems

Recommendation 7

(see S. 7.2.2, p 60 TFOSP Report)

Communication lines (described in contingency plans) should be exercised regularly.

Recommendation 8

(see S. 7.2.2, p 60 TFOSP Report)

Communication plans should be developed or reassessed for each of the offshore operation areas to identify hardware systems and communications personnel requirements needed to support large-scale, sustained incidents.

Discussion

Offshore exploratory drilling operations use advanced communication systems capable of meeting all their routine needs. These same systems are expected to handle the requirements of an operational emergency, primarily to ensure the safety of the personnel and equipment and secondarily to direct the measures to stop the release of oil.

As well, the communications network will be expected to handle the requirements of the On-Scene Commander and team directing the oil spill containment and clean-up in an emergency.

Most oil spill contingency plans focus on responding to a short-term spill event. They do not address communications needs resulting from a prolonged spill event or clean-up operation. Additional equipment and facilities would be required to serve the many oil spill response activities.

Implementation

A consultant should be hired to review the existing communications system used for offshore operations and to make recommendations for "system" capability, enhancement and staffing to address oil spill response needs for a sustained period. The consultant would also consider the isolated nature of exploratory drilling operations in the Beaufort Sea and east coast and the need for links to ensure personnel safety as well as oil spill operational effectiveness. Regulatory restrictions and network capabilities are particularly important issues to include in the study.

The cost of the contract should not exceed $50K and should be undertaken with CPA management for completion by January, 1991.

Responsible Organization: CPA

2.3 Government Approvals

Recommendation 9

(see S. 7.2.3, p 61 TFOSP Report)

Memoranda of understanding should be developed between appropriate government agencies to identify areas of responsibility and cooperation during spill response efforts. A single window approach for interacting with the government should be identified.

Recommendation 10

(see S. 7.2.3, p 61 TFOSP Report)

For those situations/techniques where government approval is required, discussions should be held with the relevant government agency to obtain pre-approval wherever possible and assurances of swift decisions where pre-spill approvals are not feasible.

Discussion

Pre-approvals

These concerns are based on the fact that industry is closely monitored by many government agencies and other interest groups including native and fishing organizations in the frontier regions. There is a tremendous diversity in opinion represented by the various organizations, and each group has significant influence which may impede the response to a major offshore oil spill incident.

It is imperative that the On-Scene Commander is in a position to make quick and effective decisions at the time of a spill, without a time-consuming approval process. The ability to make quick on-site decisions can best be implemented by securing a "single window" approach for interacting with the government, and by having pre-approval for burning, dispersant use or closure of shoreline habitats threatened by oil. Opportunities exist to develop such pre-approvals through a coordinated review process with government agencies.

In many cases it may not be realistic to expect that pre-approvals will be available owing to the number of stakeholders involved in the decision. Given that such decisions often must be made quickly after the spill has occurred, a mechanism is required to bring the affected parties together to reach a decision.

Mutual Support Industry/Government

The opportunity for government back-up and/or joint support to industry management of oil spill events is another area of government approvals that affects the success of industry oil spill response planning and implementation. An overall policy by industry and government on the roles, responsibilities and support for oil spills could improve oil spill response capability and facilitate planning and effectiveness for regional industry cooperatives.

The experiences of both the Beaufort Sea Oil Spill Cooperative (BSOSC) and Eastcoast Spill Response Inc. (ESRI) in responding to the Exxon Valdez incident showed that spill equipment from outside sources may not be as readily available as commonly assumed.

Custodians of spill equipment are reluctant to release all their equipment to respond to an out-of-region spill. Understandably they must maintain a response capability for their own region. Similarly, regulatory agencies are adamant that industry's response capability in a region must not be compromised by responding to an out-of-region spill. Inadequate spill response could result in a suspension of operations until the response capability is returned to a level deemed appropriate by the regulator.

2.3 Government Approvals continued

The transfer of skilled equipment operators and managers from co-operatives and companies to work under the direction of an oil spill manager is also a problem. First, cooperatives are reluctant to release a large proportion of their trained manpower and compromise their spill response capability. Second, it is very difficult to establish an agreement on the terms of insurance and liability for workers exchanged between companies or between companies and government.

To avoid facing these types of problems at the time a spill occurs, it was felt that it would be prudent to have a Mutual Aid Agreement in place beforehand. This would expedite the release of equipment and manpower when time is of the essence, and it would give an On-Scene Commander a better understanding of what assistance can reasonably be expected from outside sources.

Public Involvement

During an oil spill, public interest groups, such as nature groups, environmental groups, the fishing and tourism industries, and public volunteers, impact the decisions of the On-Scene Commander. Public interest groups can provide valuable support and advice during a spill. However, they may also create significant management problems for the On-Scene Commander. Mechanisms to identify such potential problems and opportunities to fully utilize such groups during a spill event would facilitate oil spill plan implementation. The issues of insurance liability and safety training are particularly important for spill clean-up volunteers.

Implementation

Pre-approvals

Senior management of CPA should initiate policy discussions with government agencies responsible for resource management and oil spill response regarding a general policy and guidelines for pre-approvals across Canada. The establishment of a nation-wide policy and guidelines would permit regional oil spill cooperatives and government agencies to identify and resolve pre-approval requirements.

The Oil Spill Equipment Cooperatives in Canada should initiate a program where the representatives of the management groups meet regularly with representatives of all the government agencies and representatives from key groups, in their respective area of operation, commencing in 1990. The format of these gatherings could consist of seminars and workshops, joint command post exercises, joint equipment deployment and/or demonstrations and joint research projects. It is anticipated that through this type of communication, liaison will be improved and greater understanding of each other's concerns and priorities will be established.

2.3 Government Approvals continued

In 1990, the management groups of the Oil Spill Cooperatives should identify specific issues, which can only be addressed by means of formal memoranda of understanding between government agencies and/or between industry and government agencies. The industry management groups should work out a procedure with the various government agencies to review and confirm or modify existing agreements as required and to develop new formal agreements.

Where formal pre-approvals cannot be reached, the industry management groups should establish a review procedure with government agencies and public interest groups to set up a mechanism to obtain an approval during a spill event. Such a mechanism would be incorporated into company contingency plans and tested with government agencies and/or public interest groups during oil spill exercises. These discussions should be led by the regional industry cooperatives with participation by regional government agencies and public interest groups.

Mutual Support Industry and Government

Agreements for industry and government to provide mutual oil spill assistance for various types of spills will require formal policy approvals. CPA should coordinate their review of the types of spills and the levels of support that a reciprocal assistance agreement with government can be expected to include. In turn, discussions and negotiations will be necessary with government to establish a mutual support policy based on their needs and those of our industry.

CPA cooperatives in the various regions should be expected to coordinate their oil spill plans and implementation procedures in preparation for regional discussions with government spill response agencies. These proposals would be forwarded to CPA for discussions with government.

Public Involvement

In 1990, CPA, working with individual operating companies, should undertake discussions with public interest groups regarding their advice and possible roles in oil spill response activities. Companies should review their contingency plans and focus on procedures to obtain advice in a timely and organized manner and, where assistance is beneficial to the response, to manage the support in an effective, safe, and cost-effective manner. This planning should also be extended to the management of spill clean-up volunteers.

Responsible Organization: CPA/BSOSC/ESRI

2.4 Additional Skilled Manpower

Recommendation 11

(see S. 7.2.11, p 63 TFOSP Report)

To facilitate the efficient acquisition of additional experienced oil spill response manpower, a national directory of industry and contractor personnel should be developed and updated on a regular basis.

Recommendation 12

(see S. 7.2.11, p 63 TFOSP Report)

Through the use of CPA member companies, rapid spill response support (RSRS) listings should be established for each of the active offshore operating areas. These listings would be comprised of industry personnel with necessary expertise to respond to various key technical aspects of a major oil spill incident, and could be contacted on short notice by a member company.

Discussion

A key step in addressing Recommendations # 11 and 12 has been initiated through CPA's involvement on the Environmental Studies Research Fund (ESRF) Management Board, which includes government and public representation.

The CPA has developed a request-for-proposal which has been endorsed by the ESRF Board entitled "Development of a National Directory of Canadian Oil Spill Response Expertise".

Implementation

A consultant has been retained by the ESRF to develop a national Directory of Canadian Oil Spill Response Expertise. This directory will identify people and services drawn from the various sectors of society, including government, industry, academia and the general public, (such as groups that rehabilitate wildlife) who have special expertise applicable for use in responding to future major oil spill accidents. This directory will also be designed to be updated on a regular basis to keep it current, relevant, and useful for oil spill response purposes.

The directory will be organized so that an emergency response coordinator can access expertise information on the basis of various key factors such as particular expertise required and geographic proximity, for all major offshore drilling areas of Frontier Canada. The work should be coordinated with a similar study of western Canadian operations expertise and downstream expertise in oil spill management.

The cost for the contract consultant to complete this work is estimated to be $50K, and it should be completed in 1990.

A decision will be required at the end of the contract to determine how the directory will be updated and who will be responsible for it. An annual update is probably sufficient.

Multi-company Response Teams

In addition to the preparation of the directory, CPA should also assist companies to arrange the exchange of personnel between companies and between companies and government in the event of a spill. Generic agreements covering liabilities and insurance to establish multi-company response teams should be made available from oil spill coops and companies to the CPA Legal Committee for review and advice. Individual companies would be responsible for their own agreements. The TFOSP study did not support the development of multi-company response teams, but based on experience with the Uniake spill, this concept should be reviewed. There are precedents with both chemical and propane gas response teams in Canada.

Responsible Organization: ESRF / CPA

2.5 Cleanup Equipment

Recommendation 13

(see S. 7.2.5, p 61 TFOSP Report)

Industry should continue its review of cleanup equipment capabilities and improve these where necessary. Serious consideration should be given to acquiring high-capacity, state-of-the-art recovery devices for co-op use to provide optimum first line response in both the Beaufort Sea and Grand Banks areas. Equipment should only be acquired where it can be shown that significant improvement in capability will result.

Discussion

There are a number of significant differences between the two oil industry coops servicing the Beaufort Sea and Grand Banks areas. The differences include organization structure, operating environment, priorities, and timing for implementation of improved response capability. In recognition of this, it was considered appropriate to deal with the Beaufort Sea and Grand Banks areas separately.

Implementation

A) Beaufort Sea

Immediately following the Exxon Valdez spill, the Management Committee of the Beaufort Sea Oil Spill Cooperative (BSOSC) initiated a critical review of response capability. It included that a review was needed of the existing response capability, the response capability required, and an action plan to bring the response capability up to the level required. A significant capital expenditure of $3 million has been made for 1990 in order to improve the coops' cleanup capabilities. Further expenditures are expected in 1991 to complete a two-phased approach to improving spill response capabilities.

B) Grand Banks

ESRI began a critical review of its equipment capability in May 1988, and this has continued until April 1990. An offshore skimming deficiency was identified, and the process of new skimmer selection was undertaken. ESRI has subsequently purchased two new Pharos Marine GT-260 skimmer systems.

The critical review process has continued with a "cradle to grave" assessment of each component of the offshore containment and recovery systems used by ESRI, with further deficiencies being identified.

The action plan to address these deficiencies is now in preparation, with further expenditures expected during 1991.

Responsible Organization: BSOSC / ESRI

2.5 Cleanup Equipment continued

Recommendation 14

(see S. 7.2.5, p 61 TFOSP Report)

Industry co-ops and the Coast Guard should work together to maximize equipment compatibility and effectiveness.

Discussion

Cooperation and dialogue between the industry coops and the Canadian Coast Guard (CCG) already takes place on a regular but informal basis on matters pertaining to equipment capability and effectiveness. This process needs to be formalized.

Standardization of fittings, connections and adapters would significantly increase equipment compatibility. In addition, duplication of effort by CCG and industry coops could be avoided by sharing information concerning equipment evaluations, operating procedures, difficulties encountered in the operation and deployment of equipment, and how these difficulties were overcome.

Implementation

A working group should be established, comprising representatives of the CCG and industry co-ops. As most organizations are presently buying or preparing to buy equipment, this group should be established as soon as possible.

Terms of reference, defining areas where equipment compatibility and effectiveness can be maximized and implemented, will be determined by the working group.

Responsible Organization: CPA/BSOSC/ESRI

2.6 Logistics Equipment

Recommendation 15

(see S. 7.2.6, p 62 TFOSP report)

A study should be undertaken for the Canadian east coast to determine the availability of alternate vessels and to identify pre-arrangements required to ensure immediate access to these vessels in the event of a major spill.

Discussion

The working group questioned the TFOSP conclusion that an adequate number of vessels are operational in the Beaufort Sea during the open water drilling season and would be available to support an offshore response effort. It was agreed that the recommendation to undertake a study to determine vessel availability should be extended to the Beaufort Sea as well. Specifically, the review should determine the number and types of vessels required for a major spill response in the Beaufort, conduct an inventory of the number and type of vessels available, determine vessel availability and pre-arrangements required to ensure access.

2.6 Logistics Equipment continued

The availability of tanker or barge support for storage of recovered product should also be reviewed for both the east coast and the Beaufort Sea.

Implementation

Both the BSOSC and ESRI should hire a consultant to review vessel availability and identify pre-arrangements required to ensure immediate access for their respective areas. The exact terms of reference for the studies should be determined by the respective management of each coop.

The cost of the contracts should not exceed $10K each and should be undertaken with the direction of the respective cooperatives. The potential for jointly funding the east coast study with CCG and Canadian Petroleum Products Institute (CPPI) should be pursued as both these organizations could benefit from this study.

Responsible Organization: BSOSC / ESRI

Recommendation 16

(new recommendation)

Develop and maintain an inventory of spill response equipment available in Canada from both industry and government.

Discussion

The development and maintenance of a national inventory of spill response equipment is an issue that was not addressed in the TFOSP report. However, it was felt by the working group to be of sufficient importance to warrant inclusion as a recommendation.

Development and maintenance of an equipment inventory would provide industry with a single reference for spill equipment in Canada. The information would be provided on a database and delivery system agreed to by user groups, thereby providing consistency across the industry.

Implementation

In its interim report, the Public Review Panel on Tanker Safety and Marine Spills Response Capability recommended the reactivation of the National Emergency Equipment Locator System (NEELS). Before proceeding with an industry-sponsored inventory, the status of NEELS needs to be clarified and a decision made as to whether this recommendation can best be handled by industry or the government.

CPPI has also recognized the need for a national inventory and is actively pursuing this idea. Contact needs to be made with CPPI as soon as possible to ensure no duplication of effort and to encourage joint funding of this task.

Responsible Organization: CPA

2.7 Training

Recommendation 17

(see S. 7.2.10, p 63 TFOSP Report)

Each company should train an adequate number of employees in the various facets of oil spill response.

Recommendation 18

(see S. 7.2.10, p 63 TFOSP Report)

Senior management should participate in more general crisis management training to assist in developing internal crisis management teams and plans.

Discussion

The TFOSP training recommendations are directed to actions suggested to be undertaken by individual companies, and not the upstream industry in general. Thus, CPA'srole in implementing this recommendation is to provide materials and methodology to support individual company training needs. As well as training in oil spill response technology, CPA should undertake surveys and prepare reports on existing courses and case studies from recent spill response activities. Guidelines for the identification of team skills and training needs should be prepared by CPA for use by member companies. The Petroleum Industry Training Service (PITS) may be a mechanism for doing this.

Since these needs are not unique to CPA member companies, this effort should be carefully coordinated with CPPI, Petroleum Industry Response Organization (PIRO), CCG, and American Petroleum Institute (API) in terms of content as well as the interchange of documents and visual material. The various regulatory agencies such as Canada Newfoundland Offshore Petroleum Board (CNOPB), Canada Nova Scotia Offshore Petroleum Board (CNSOPB), and COGLA should participate in the review of this material in order to achieve acceptance by regulatory agencies.

Implementation

Eight different training projects have been identified as required to satisfy the above recommendations.

1. Evaluation of existing Canadian and international training courses.

An expert evaluation is required of the various training courses offered in Canada and internationally. This evaluation should focus on the applicability of the material to the Canadian situation. The coverage of oil spill response, contingency planning, and crisis management areas should be evaluated. The skills and capabilities of the instructors, the quality of the reference materials, the usefulness and relevance of the exercises, and the relation of this activity to the classroom program should be determined. Courses provided by OSRL in Southampton, Marine Emergency Management Course (MEMC) by the CCG in Cornwall, Lambton College in Sarnia, and those offered by PITS should be compared and their suitability for members of individual company response teams should be identified. This program must be updated frequently and would become the "Consumers Report" of the oil spill training business.

As well as evaluating the formal courses, this project should identify specialist consultants and instructors who could be used to augment individual company training programs.

2.7 Training continued

An initial cursory review was undertaken by the ERSF, but this is largely out of date due to the rapid changes in the oil spill response business.

2. Review of current approaches to training by various member companies and other groups.

Many companies provide, to various degrees, internal training in emergency response and oil spill mitigation techniques. A study should be undertaken of these programs to augment information on the more generic training courses considered in item 1. This study should examine a variety of training philosophies, for example, the multi-interest team approach used by Chevron, ESSO's self-training NET organization, the Mobil (MOMSI) system, and the Shell response teams.

This study would cover all areas, including contingency planning, crisis management, and response management.

3. Identify team skills and training needs.

This study would provide the basis for an individual company to develop its own training program and to audit its current situation in terms of oil spill response and crisis management.

4. Determine company/operator responsibilities and liabilities.

This project will provide a comprehensive review of relevant legislation and regulations applicable during an oil spill incident resulting from an offshore operation. A summary of current Canadian regulations will be prepared for use by member companies. This will be updated on a yearly basis.

There is evidence that Canadian regulations frequently parallel those in international jurisdictions. To provide members with advance notice of potential regulatory changes, the international situation will be monitored. On a less frequent basis, regulations from other offshore areas, such as Norway and Alaska, will be compiled to provide indications of possible future regulatory changes.

5. On-site training module.

In most spill situations, local workers and contractors become involved in response activities. In order to ensure a safe operation, training must be given to these groups. A training module needs to be developed and made available to member companies for this purpose. This module would cover safety at the spill scene, use of equipment, procurement and staff assignment procedures, legal concerns, and response strategies. It would be targeted at field supervisors, general workers and volunteers. This module would be prepared, and a training program for member companies would be developed.

2.7 Training continued

6. Tracking of training by individual companies.

A program will be developed to monitor the progress of member companies and the cooperatives in implementing the TFOSP Recommendation on training. While it is clearly the responsibility of member companies to implement this recommendation, CPA should develop a method of monitoring progress. One possible method is to develop a CPA-administered database for tracking training, which would be updated quarterly. The results of this compilation would be distributed to each member company for their review and action.

Responsible Organization: CPA/ESRI/BSOSC

2.8 Research and Development

The TFOSP report strongly supported increased research and development directed toward improving oil spill technology.

Recommendation 19

(see S. 7.2.12, p 63 TFOSP Report)

Oil spill R&D programs should be funded by industry and government in Canada at a higher funding level than has been the case over the last four years.

Discussion

During the past few years, the member companies of CPA have spent more than $4 million on oil spill research sponsored by the ESRF. The ESRF programme is not as operationally oriented as research undertaken solely by industry. It is recommended that CPA implement the TFOSP recommendations of an operational nature under its own auspices rather than through ESRF. This would enable the offshore industry to respond quickly to operational problems identified by the CPA member companies.

Ten years ago, Arctic Petroleum Operators Association (APOA) and Eastcoast Petroleum Operators Association (EPOA) recognized the need for increased research in oil spill response in the frontier and established the $5 million research program with the acronym COOSRA (Canadian Offshore Oil Spill Research Association). The funding for this program was based on a formula developed by APOA/EPOA and agreed to by its members.

COOSRA was a very successful program, that resulted in a number of significant advances in oil spill response technology. The Exxon Valdez response used some COOSRA-developed response equipment and methods, including:

- Simple Remote Sensing system
- Fire-proof boom
- Sacke burner
- Dispersant field trail data.

The success of COOSRA was due to its operational nature and the strong support of the oil industry in the development of its programs. The TFOSP recommendations are strongly oriented to operational response concerns and activities and therefore would be best implemented under an industry-managed structure.

The relative advantages and disadvantages of the two systems were considered by the task group. This discussion is summarized in point form overleaf.

ESRF funding:

Advantages

- Ease of collecting money
- Universal participation by all land holders
- Limited manpower commitment from industry
- Third party perception, results less biassed

2.8 Research & Development continued

Recommendation 20

(see S.7.2.12, p 63 TFOSP Report)

Research should continue to improve capabilities to permit more accurate quantification and characterization of oil remaining on/under the sea surface and oil spilled under ice. The Canadian oil and gas industry should focus on R&D that will improve industry's capability in particularly weak areas such as:

1) technologies for recovering heavy, waxy and/or emulsified oil;
2) chemical dispersants effectiveness;
3) predicting the medium and long-term behaviour and effects of Grand Banks crude oils;
4) clean-up of oil in broken ice environments;
5) in-situ ignition and combustion of water-in-oil emulsions;
6) remote sensing to detect quality and quantity of oil spills in ice situations and for the tracking of Grand Banks crude oil spills.

Disadvantages

- Lack of industry profile in the work product
- High overhead costs
- Lack of control of time scale of projects
- Lack of flexibility of implementation

COOSRA funding:

Advantages

- Programs strongly associated with Canadian oil industry
- Industry control of priority and timing of projects
- Experience of industry staff can be directly applied to projects
- Residual benefits reside with industry staff
- Lower administrative costs
- Flexibility of funding – joint government project – ease of changing scope - patent registration
- R & D tax credits

Disadvantages

- Perception of lack of support for ESRF by industry
- Increased demands on industry staff
- Must negotiate a new agreement and establish levy/administration system
- Loss of third party credibility

The working group agreed on the need for increased research and development of oil spill response methods. The topic areas suggested by the TFOSP reports were acknowledged as important, but omitted the two important areas of shoreline clean-up and effects monitoring. These have been added to the topic list and were included on an equal basis with the other recommendations.

Implementation

1. Industry coordination of oil spill research should be reactivated

It is proposed that a new association, based on the experience of COOSRA, be formed to implement the TFOSP offshore R & D recommendations. This new organization would be managed by a committee composed of industry members who would be responsible for policy and financing. A technical committee composed of industry technical experts would be responsible to the management committee and would develop and manage the TFOSP programs. The technical committee would welcome representatives of CPPI, EETD, CCG as active observers in order to coordinate oil spill research efforts in Canada.

Proposed Infrastructure

It is proposed that the newly formed CPA frontier oil spill committee hire a full-time manager and two assistants to coordinate and direct the implementation of the R & D and other TFOSP programs. The team would work under the direction of a management group, described

2.8 Research & Development continued

above, that is responsible for setting priorities. Staff members could be seconded from CPA/IPAC member companies or could be new hires with the potential of future employment with a member company. This proposed structure would establish a core of expertise within the industry and maintain this experience without additional staffing by member companies. Equitable funding would be determined using the CPA formula. The research program described below would be implemented by the new organization.

2. Research Program

Eight different research programs are proposed in the initial work plan for implementation of the TFOSP report recommendations. A brief description of these subject areas serves as the basis of development of specific research activities.

a) Heavy Oil Recovery

This program would focus on the testing of existing skimming systems for the recovery of heavy oil. Should a suitable system or systems be found, its characteristics would be described and a procurement specification developed. If no suitable unit is identified, a program would be developed to improve existing systems or develop a new skimmer based on a new idea or concept. The use of chemical additives, such as Elastol and a demoussifier, would be investigated for their ability to improve skimmer effectiveness. The cost of this program is not well defined due to the lack of a basis for detailed design of the activity. This program would be phased, and each phase would be planned based on the results of the previous phase. Some components of this program are now underway with funding from some of the member companies of CPA and CPPI.

b) Oil Spill Chemicals

There are still a number of unresolved issues concerning the use of dispersants. The main problem is the lack of a suitable chemical which has a demonstrated high level of effectiveness in a field situation. The main focus of this effort should be the development of improved chemicals. There are a number of efforts around the world in this area, and these developments should be reviewed and the desirability of a Canadian activity evaluated. This initial phase would be low budget. Should it be decided to proceed with the development of a new product, the total costs would be significant.

c) Fate Models for Grand Banks Oil

The long term fate of heavy waxy crude oils, such as occur on the Grand Banks, is not well understood even though there has been considerable effort devoted to this topic. Further laboratory studies with long term funding and experimental programs are proposed to provide a basis for the development of a model. Based on a combination of

2.8 Research & Development continued

laboratory results and a new computer model of the fate of Grand Banks oil will be developed.

d) Oil in Ice Clean-up

While there has been a significant research effort in developing methods of cleaning up oil in and under ice, there are few well established and successful techniques available. As new innovative solutions are identified, research at laboratory and field scale should be undertaken to determine the usefulness of these concepts.

e) Burning

The in-situ burning of oil is an attractive technique in remote areas where removal and disposal are difficult and costly. The issues involved in burning are:

i. The generation of a large black smoke plume which is perceived as causing significant air pollution.
ii. The efficiencies of burning as a function of type and degree of oil weathering.
iii. The effects of emulsion on burning and the effectiveness and operational problems associated with the concept of "Break and Burn".
iv. Chemical and mechanical methods of reducing soot production during burning.

A major program on burning has been developed jointly by Environment Canada, the US Minerals Management Service and Esso. Laboratory and meso-scale studies are now underway to further understand the science associated with this issue, and these will be followed by two large scale field trials, one in Louisiana and the other in a northern location yet to be determined. It is proposed that CPA should be involved in this project.

f) Remote Sensing of Oil in Ice

There are three major problems that need to be solved in the remote sensing of oil on ice, on shorelines and on water. These are:

i. A unique system of detecting oil and differentiating oil from other materials. The sensor best suited for this is a laser-fluorosenser. A prototype is being developed jointly by Environment Canada and the US Minerals Management Service.
ii. A method of measuring the thickness of oil is required. This was initiated under ESRF but was not continued. The most likely system is a laser-induced acoustic wave which is detected by Fabre-Perot interferometry using another laser. The prototype of this system has been developed jointly by Environment Canada, the US Minerals Management Service, and Esso.
iii. A method of detecting oil under ice is needed. Environment Canada and Esso have conducted a $500K program which pro-

2.8 Research & Development continued

duced a functional system based on acoustic sounding. This system needs further development and engineering before it becomes operational.

It is proposed that CPA should be involved in all three of these projects.

g) Shoreline Clean-up methods

During the response to the Exxon Valdez, a number of new shoreline clean-up techniques were developed and used operationally. Research is required on these to optimize the methodology and understand the process involved. Some topics that should be studied include:

i. optimization of the water treatment techniques in terms of pressures, water temperature, and application methods.
ii. the process of oil motion in shore areas when subject to tides and storms.
iii. the use of chemicals on shoreline and their effectiveness.
iv. bioremediation as a shoreline cleanup technique.

h) Effects monitoring

Methods and techniques need to be developed to monitor the effects of an oil spill in terms of concentrations of hydrocarbons in the water, air, and shoreline and the impacts of this on the biological community.

Responsible Organization: CPA

Section 3

Implementation of Onshore Recommendations

Preamble

Many of the onshore recommendations in the plan are referred to the Prairie Region Oil Spill Containment and Recovery Committee (PROSCARAC) for implementation. At present, this Committee is in a state of flux and is being transformed into an incorporated subsidiary of CPA to be known as PROSCARAC Inc. This change will be completed in the fall of 1990 and should provide for increased efficiencies in implementing the onshore recommendations.

3.1 Planning

Recommendation 21

(see S. 6.1, P 93 TFOSP Report)

The CPA "Oil and Salt Spill Contingency Plan Guidelines", issued in 1975, should be revised and updated to include specific items listed as Policy, Communications, and Contingency Plan Recommendations in the Onshore section of the TFOSP Report. The Revised Guidelines should include but not be limited to sections that address the following:

1. Companies should prepare a clear and concise Policy Statement which is written into their contingency plans.

(see S. 6.3, p 94, TFOSP Report)

2. Contingency plans should contain a communication section that identifies and strives to improve regular communications between all company departments, government agencies and the public to ensure that effective notification procedures are functional during oil spill response.

Discussion

TFOSP recommendation #21 part 1 continues in a more specific manner to indicate that company Policy Statements should include:

- a clear indication of the company's response priorities in the event of an oil spill (i.e., safety, property, environment)
- responsibilities for communicating with the public and media
- an identification of company response personnel positions with a written mandate for oil spill response duties contained in their job descriptions
- the necessary oil spill certified training required for company personnel and contract operators and a recognition of this training by senior management
- the company's position on allowing personnel to perform duties for industry committees and oil spill cooperatives
- the government policy on the takeover and/or coordination of spill response operations
- strict procedures for the designation of on-call field personnel. There must be no confusion during an emergency response as to the availability of personnel
- the liability exposure of company personnel
- crisis management procedures for handling worst case situations
- the review of all significant industry spills with information available to all employees.

Recommendation #21 part 4 indicates that company contingency plans should address the following:

- communication procedures which must be implemented within company departments, with government and emergency response personnel
- evacuation procedures and assistance from police and government emergency organizations, especially in urban areas
- environmental resources, water and land users

3.1 Planning continued

(see S. 6.3, p 94, TFOSP Report)

3. Contingency Plans should detail government organization structures and the necessary oil spill reporting requirements. For pipeline locations, the CPA should also encourage membership in the "Alberta First Call" or similar systems.

4. Company and cooperative contingency plans must be updated annually and reviewed with management and field personnel in conjunction with simulation and communications exercises. The plans should follow an established industry standard for consistency, format, and content.

5. Companies, regardless of size and geographic area of operation, must identify their spill response procedures for all possible accident scenarios. This may identify shortcomings in manpower, equipment and supplies to deal with the scenarios. Procedures for some facilities should be included in existing cooperative plans.

- characteristics, precautions, and special recovery procedures for all products, (condensate, diesel, gasoline and heavy oil)
- preauthorization of response priorities and authority delegation
- a plan review with emergency response personnel
- documentation of response details for future training, cost control and legal implications
- regulatory spill reporting requirements
- requirements under the Transportation of Dangerous Goods Act for the notification of certain spills
- the benefit of supplementing contingency plans with pocket size cards outlining emergency "First Hour Procedures".

Industry now recognizes the advantage of having emergency procedure plans that are specific to an individual company facility. Historically, the majority of companies have relied on the oil spill cooperatives to provide information on response planning and control point selections in their areas of operation.

This planning process has been sufficient in most cases to satisfy the basic government requirements. However, with the heightened level of environmental awareness and public concern over industry's capability to respond to a spill situation, a plan that clearly integrates policy issues, management positions and government directives is now required.

Implementation

An environmental consultant should be retained to initiate revision of existing CPA guidelines followed by an industry-coordinated:

- inter-governmental agency workshop, and
- development of training videos.

The agency responsible for this program should be CPA / PROSCARAC. CPA should encourage the establishment of an Inter-Governmental Steering Group comprised of federal, territorial and provincial environmental departments which would facilitate liaison and provide a coordinated government response to the revised Contingency Plan Guidelines.

Responsible Organization: CPA / PROSCARAC

3.1 Planning continued

Recommendation 22

(see S. 6.3, p 95 TFOSP Report)

Companies should develop effective working relationships with local government agencies through regular communication.

Discussion

Many oil spill cooperatives have lost the liaison with local government representatives that was established during the early cooperative development years. Liaison should be renewed to better inform and gain an understanding of the efforts of all toward emergency response and employee training.

Implementation

Responsible government agencies in each province/territory should be identified and notified and/or invited to individual company/cooperative training exercises by CPA / PROSCARAC or the appropriate oil spill cooperatives.

Responsible Organization: CPA / PROSCARAC and Coops

Recommendation 23

(see S. 6.3, p 95 TFOSP Report)

The CPA should develop an industry newsletter which focuses on oil spill response and includes exercise dates, new developments, new equipment, case histories, reviews, and reclamation planning.

Discussion

Communication is a key element in the success and continued development of the cooperative system. Sharing ideas, experiences, and information of common interest through an environmental newsletter will assist in bridging communication gaps.

Implementation

Publish a quarterly newsletter through CPA / PROSCARAC identifying environmental courses, seminars, specialized containment and recovery equipment, spill statistics, case histories, and articles by oil spill cooperative chairmen.

Responsible Organization: CPA / PROSCARAC

Recommendation 24

(see S. 6.3, p 95 TFOSP Report)

Industry associations should develop active industry initiated public awareness programs on oil spill preparedness.

Discussion

Individual companies have initiated public awareness programs in association with emergency response plans at sour gas facilities. A similar process should be developed to educate the public and media on the industry's capabilities to respond to and control oil spill situations.

Implementation

Through CPA, IPAC and PROSCARAC, general brochures should be developed for distribution to the public and the media detailing industry's capabilities to manage environmental incidents and further introduce local industry cooperative organizations.

Responsible Organization: CPA, IPAC and PROSCARAC

3.1 Planning continued

Recommendation 25

(see S. 6.3, p 95 TFOSP Report)

The company name, facility name, location and emergency contact phone number, clearly visible for non-company personnel, should be posted at all facilities.

Discussion

The posting of emergency contact numbers provides an opportunity for companies to be alerted earlier to an emergency or to be contacted in other situations that may require action, such as vandalism or facility break-ins.

Implementation

General letters should be sent to all CPA/IPAC members suggesting that consideration be given to including an emergency telephone number on existing identification signs at individual facilities. PROSCARAC/CPA/IPAC should review the best ways to deal with first alert.

Responsible Organization: CPA/IPAC Safety Committee

Recommendation 26

A national directory of trained industry and contractor personnel should be developed and made available to response organizations to provide organizations with backup during major spill incidents.

Discussion

The availability and location of specialized spill containment and recovery equipment is critical to a successful spill response. Of equal importance is the availability and location of trained individuals or contractors as resource consultants during an emergency.

Implementation

A consultant will be contracted to develop a computerized directory that will include as a minimum a listing of all industry and contract personnel by region and/or area that have specialized training in spill containment and cleanup activities. This recommendation is paralleled by Recommendation #11 for the offshore sector of the industry.

Responsible Organization: CPA/IPAC/PROSCARAC

3.2 Prevention

Recommendation 27

(see S 6.2, p 94 TFOSP Report)

A. Companies should conduct regular environmental audits of their facilities to determine potential spill sources so that preventative actions can be implemented.

B. Potential projects must also be assessed to ensure the incorporation of best practical technology in the Planning phase.

Discussion

The means to minimize the risk of most spills is available to industry, especially if industry is diligent in its operating practices. Improved technology is available. There is a need to define the problems and costs to industry associated with spills to achieve greater commitment to spill prevention and so that preventative action can be focused on problem areas.

According to spill statistics published in the TFOSP report, the primary sources and causes of spills were pipelines and corrosion (52% of reported spills). Pipelines have a proven track record as the safest means of transportation. In addition, construction practices and operation technology related to pipelines and facilities have improved.

In looking at developing facilities, besides economic factors, more consideration must be given to long term environmental considerations. Developing a concern over future potential liabilities and concern for exhibiting due diligence and meeting existing regulatory requirements and codes of practice will go a long way to preventing future spills. Compliance will ensure the incorporation of best practical technology, and construction and inspection practices.

Implementation

Through continuing review by the CPA Environmental Committees, the existing CPA audit guidelines are being updated and should include a section on the construction, operation, and maintenance of major pipeline systems and related facilities. Companies should be encouraged to utilize the guidelines and to conduct regular reviews of their facilities.

The industry should continually review and if necessary update the Code of Practice to incorporate new technology in the Planning phase. Companies should increase inspection and quality control to ensure incorporation of the best construction practices.

Responsible Organization: CPA/IPAC technical committees and individual companies.

3.2 Prevention continued

Recommendation 28

(see S. 6.2, p 94 TFOSP Report)

The industry should evaluate the current level of leak detection systems available and, where deficient, undertake a research and development program to improve efficiency.

Discussion

Industry is actively reviewing leak detection systems. Better industry coordination may be required to fully identify initiatives. For pipelines, companies should review the CPA's pipeline division upcoming report on leak detection methods used in the pipeline industry and the Canadian Standards Association recommended practices for leak detection systems.

Implementation

Through CPA/IPAC/CSA, the following steps are required to implement the recommendations:

- Update minimum standards for leak detection systems
- Develop more practical technology for small diameter/low flow pipelines
- A CSA Task Force on Leak Detection (Gas & Liquid) Operations Systems Integrity Sub-Committee and CSA Pipeline have completed a review of leak detection systems. A recommended practice for leak detection has been approved by the CSA Technical Committee for inclusion in National Standard of Canada, Oil Pipeline Systems, CAN3-Z183.
- A CPA Technical Committee currently has a group reviewing leak detection systems.

Responsible Organization: CPA/IPAC

Recommendation 29

(See S. 6.2, p 94 TFOSP Report)

Companies should implement an oil spill incident review process and incorporate the results into improved operating procedures.

Discussion

The CPA has internal reporting procedures in place for oil pipeline transportation systems (CAN3-Z183) which should be utilized by all members who have these facilities. This type of reporting procedure could be adapted and utilized internally by industry to include all upstream facilities and thereby present a clearer identification of all spill sources. While the onus is on the individual companies to review oil spills and incorporate results into their operating practices, the CPA can develop procedures and operating guidelines that would assist companies to review their operations.

Implementation

- Strike a CPA/IPAC technical committee or hire a consultant to review current reporting practicesin order to develop procedures/ reports that can be used by individual companies to assess spill sources and the action that can be taken to prevent them.
- A letter should be sent to companies reinforcing the need for an internal review to identify spill sources with the view to improving operating practices.

Responsible Organization: Companies; CPA/IPAC/PROSCARAC

3.3 Equipment

Recommendation 30

(see S. 6.5, p 96 TFOSP Report)

Companies, cooperatives, and industry associations should continue to work together to maximize equipment compatibility and effectiveness.

Discussion

A number of oil spill equipment caches are located across Canada. In the event of a large spill, a detailed inventory would enable companies to locate and obtain the necessary equipment quickly from the nearest cache. Furthermore, it would be advantageous if industry collaborated on equipment standards to ensure equipment compatibility and effectiveness. To enhance industry's level of preparedness, the oil spill equipment inventory should be updated annually.

Implementation

1. Detailed inventory updating is required to identify deficiencies and incompatibilities in oil spill equipment throughout Canada.
2. Make recommendations based on the above.
3. All equipment holders implement changes based on recommendations.
4. Update oil spill equipment inventory annually.

Responsible Organization: PROSCARAC; Individual Coops; Coop Chairmen; consultant

Recommendation 31

(see S. 6.5, p 96 TFOSP Report)

An evaluation of all equipment maintenance programs should be made to ensure effective operation.

Discussion

In order to ensure that equipment is maintained and functional when required, it is critical that an industry-wide equipment maintenance program be developed.

Implementation

Develop the suggested basic maintenance program for all equipment holders (this may be completed with Recommendation 30) Initiate follow-up equipment audit.

Responsible Organization: PROSCARAC

3.3 Equipment continued

Recommendation 32

(see S. 6.5, p 96 TFOSP Report)

Companies must evaluate the specific and remote locations for equipment requirements. In areas where there are shortfalls, individual companies and industry associations should supply minimum equipment packages ($35,000/package).

Discussion

Equipment caches located throughout Canada may not be situated in the appropriate locations. A risk assessment would determine the locations of remote high risk areas and recommend equipment packages for these areas. This would increase industry's level of preparedness in the event of an oil spill.

Implementation

Through a contract administered by PROSCARAC, a consultant should be hired to conduct a risk assessment to identify shortfalls and recommend installation of equipment packages in remote locations. Letters should be sent to companies advising them to look at significant spill scenarios and remote areas with suggestions that they purchase required equipment where necessary.

Responsible Organization: PROSCARAC

Recommendation 33

(see S. 6.5, p 97 TFOSP Report)

Purchase additional equipment capable of handling light condensate and heavy oil products ($ 3 million over the next five years).

Discussion

Appropriate equipment has not been developed to handle oil spills involving light condensate and heavy oils. Research is required to develop the appropriate equipment for these products. PROSCARAC Research and Development Committee should address this issue.

Implementation

Purchases of appropriate equipment would be contingent on PROSCARAC Research and Development Sub-Committee results and TFOSP R & D Working Group discussions.

Responsible Organization: PROSCARAC

Recommendation 34

(see S. 6.5, p 97 TFOSP Report)

Evaluate the feasibility of establishing a 1-800 telephone service for contacting the OSCAR and Coops equipment in Western Canada.

Discussion

In a crisis situation, it is paramount that industry be able to access the appropriate equipment. The establishment of a 1-800 number would enhance industry's ability to respond.

Implementation

Through PROSCARAC, the industry should:

- determine feasibility
- evaluate usefulness of a 1-800 service
- develop procedures if the evaluation is positive.

Responsible Organization: PROSCARAC

3.3 Equipment continued

Recommendation 35

(see S. 6.5, p 97 TFOSP Report)

The National Emergency Equipment Locator System (NEELS) should be revitalized and upgraded on a regular basis.

Discussion

The National Emergency Equipment Locator System would provide useful information to industry in an emergency situation. Industry should encourage this government initiative.

Implementation

In its interim report, the Public Review Panel on Tanker Safety and Marine Spills Response Capability recommended the reactivation of the National Emergency Equipment Locator System (NEELS). Before proceeding with an industry-sponsored inventory, the status of NEELS needs to be clarified and a decision made as to whether this recommendation can best be handled by industry or government.

Responsible Organization: PROSCARAC

Recommendation 36

(see S. 6.5, p 97 TFOSP Report)

Investigate:

- standardization of boom connectors
- availability of tank truck hatch cone covers
- small equipment packages for trucks
- purchase of lake boom trailer by PROSCARAC
- helicopter transportable equipment for remote locations.

Discussion

Action to investigate the equipment deficiencies identified in this recommendation will form part of the implementation of Recommendation #30.

Implementation

PROSCARAC Equipment Sub-Committee and Coop Chairmen should consider investigating these items with Recommendation 30. Availability, cost, installation of these materials and items should be determined and information provided to the industry and Coops regarding possible purchase.

Responsible Organization: PROSCARAC; Coop Chairmen

3.4 Training

Recommendation 37

(see S. 6.7, p 98 TFOSP Report)

a) Local oil spill equipment exercises should vary in their location, time of year, and type of equipment.

b) Site specific equipment exercises should be held by individual companies for their own staff hands-on training activity.

c) Training programs and equipment exercises should include member of the local emergency response agencies (police, fire and emergency measures).

Discussion

The items contained in this recommendation are fundamental to oil spill countermeasures preparedness. Much effort and imagination by Oil Spill Coop Chairmen and Coop member company representatives are required to sustain an effective Coop training and oil spill exercise program.

Implementation

Oil spill cooperatives should be required to develop and submit to to PROSCARAC a five-year plan comprised of five different exercises representing different environmental or source conditions. For example, an exercise requiring deployment of equip-ment in fast-flowing water, or an exercise involving deployment under winter conditions. Oil spill cooperatives should be encouraged to include some spill theory training in their exercises and to tailor their exercises to conditions that are a specific concern in their geographic area.

Companies should be encouraged by their management to conduct periodic in-house spill exercises. In this regard, the CPA "Oil Spill Training Exercise Guidelines" should be updated to reflect TFOSP recommendations.

Recommendations regarding notification and participation by other emergency response agencies should be included in the revised CPA Oil Spill Training Exercise Guidelines. Coops should encourage participation by local response agencies.

Responsible Organizations:

a) Oil Spill Coops; PROSCARAC

b) PROSCARAC

c) Oil Spill Coops; PROSCARAC

Recommendation 38

(see S. 6.7, p 98 TFOSP Report)

a) Companies must recognize that effective oil spill training is not limited to equipment deployment exercises but also spill prevention, contingency planning, control point selection, community relations, and environmental awareness.

Discussion

Companies must expand the training requirements of individuals who may be required to react to an oil spill. Consideration must be given to making oil spill response training a part of the regular employee career development and included in an individual's job description. By developing a certification process for this training, the capability level of oil spill respondents should increase throughout the entire onshore industry by providing consistency and proof of competency.

3.4 Training continued

b) Companies must assess the oil spill response training requirements of their personnel and describe the duties and responsibilities in the employee's job description.

Recommendation 39

(see S. 6.7, p 98 TFOSP Report)

Certification criteria must be developed for oil spill response training. All field personnel (including drilling and trucking) and management should have certified training.

Implementation

The revised CPA Oil Spill Training Exercise Guidelines will identify spill-related subjects that should be included as classroom topics for training exercises.

A task group should be formed to define certification, set standards, and identify the people who require certified spill training. The Petroleum Industry Training Service (PITS) will coordinate a certification committee of CPA and IPAC members which will prepare certification recommendations that will be forwarded to CPA and IPAC for endorsement. The task group should encourage companies to adopt certified spill training as part of the qualifications for promoting operators and other key field staff. Training requirements, including spill training, will be identified in the employee's job description.

Responsible Organization: PROSCARAC/PITS/CPA/IPAC

Recommendation 40

(see S. 6.7, p 98 TFOSP Report)

Companies must encourage their employee's participation in oil spill committees, cooperative activities and training duties. Time commitments should also be identified in the employee's job description.

Discussion

Leadership is required by Oil Spill Coop member companies in scheduling oil spill training for their employees. This should be part of normal company environmental responsibility and stewardship.

Implementation

Companies should include employee involvement in oil spill countermeasures activities, and Coop and training duties in its environmental stewardship process and include a designation of this responsibility in an employee's job description.

Responsible Organization: CPA/IPAC

Recommendation 41

(see S. 6.7, p 98 TFOSP Report)

Overview training programs on planning and response must also be developed for senior management.

Discussion

To be successful and effective, oil spill training programs must be fully understood and supported by senior management of all CPA and IPAC member companies. The most current oil spill training and response information must also be available for individuals within senior management.

Implementation

Periodic information seminars should be organized for senior management that address corporate response strategies. The seminars should be hosted by a senior executive from a CPA/IPAC member company.

Responsible Organization: PROSCARAC/CPA/IPAC members

3.5 Research and Development

Recommendation 42

(see S 6.8, p 98 TFOSP Report)

Guidelines and procedures must be developed for dealing with:

- heavy oil
- shallow and moving ice
- fast flowing rivers
- handling products with low flash points
- cold weather equipment.

Discussion

Many aspects of oil spill containment and recovery require additional research to improve existing technology. The areas identified in the TFOSP report that are not adequately handled by existing technology include: spills into ice-infested streams and fast-flowing rivers and oil spills involving heavy oil. Present and future research priorities focus on these topics.

Implementation

Heavy Oil

A research project is required to evaluate existing techniques and new concepts for containment of heavy oil spilled into moving water. A second phase of the project would look at recovery techniques based on the results of the first phase. The project would be initiated through the PROSCARAC R&D Sub-Committee.

A study has already been initiated to synthesize existing research and experience to deal with spills of heavy oil/diluent blend. A report will be prepared for distribution to PROSCARAC membership.

Shallow Water, Moving Ice Conditions

A review of existing techniques and any deficiencies is recommended to form the basis for identifying specialized or new equipment which could be added to the fleet specifically for dealing with these difficult conditions. A "brainstorming" workshop of approximately 30 experts is proposed. The results would form the basis for further research.

Fast Flowing Rivers

Problems have been encountered with anchor-holding power and boom deployment in fast-flowing rivers. These and other problems will be addressed at the "brainstorming" session. This session will develop a five-year research program for these priority areas.

Handling Products with Low Flash Points

Procedures and guidelines for worker and public safety during response to condensate or gasoline spills are to be prepared for the Coops.

Cold Weather Equipment

An oil spill exercise should be conducted on an ice-covered river. A report and video package will be prepared for PROSCARAC membership. A consultant should be hired to assess the suitability of portable tanks for cold weather use and report to PROSCARAC.

Responsible Organization: PROSCARAC

3.5 Research and Development continued

Recommendation 43

(see S. 6.8, p 98 TFOSP Report)

Evaluation must be made of the present communications equipment available through provincial telephone systems.

Discussion

Recommendation 43 is similar to Recommendation 34. Representatives of provincial telephone systems have been extremely cooperative in the past in providing communication facilities for oil spill exercises. Research must be done to ensure that an adequate emergency communications system can be provided in a timely manner when an actual oil spill takes place.

Implementation

A consultant will be required to review communications equipment available from the provincial telephone systems and report to PROSCARAC. See recommendation 34.

Responsible Organization: PROSCARAC

Recommendation 44

(see S. 6.8 p 99 TFOSP Report)

CPA/IPAC should encourage the re-establishment of dedicated equipment and training testing centres.

Discussion

Various dedicated equipment and training centres have existed in North America from time to time. These facilities are very expensive to build and operate. An effort must be made to utilize the most cost effective testing and training facilities available.

Implementation

The committee found that the lack of test facilities does not appear to be curtailing research at this time. However, an inventory should be compiled of existing oil spill test facilities and assessment made of their current and projected workload. This will allow the industry to assess what test facilities are needed and to share in the research efforts of other groups.

Responsible Organization: PROSCARAC

Recommendation 45

(see S. 6.8, p 99 TFOSP Report)

The CPA should encourage the collection and publication of oil spill statistical data on a uniform and timely basis.

Discussion

Industry must report information on oil and salt water spills to a central data collection point using a standardreporting format, to make the data a valuable resource. This information can be very useful in establishing both research priorities and equipment needs. Some of the data now exists, but it is not used to full advantage.

Implementation

A comprehensive assessment of the present spill reporting database should be undertaken. Type, size, location, season, cause, and cost are some of the parameters that should be statistically summarized. The information should be used to assess the response strategy of the oil spill infrastructure.

Responsible Organization: PROSCARAC

Section 4

Costs

Cost of Implementation

Costs of the individual components of TFOSP implementation are given in the tables summarizing implementation plans for the offshore and onshore industries (see Appendix 1). Collectively, these proposed plans represent a substantial but necessary investment toward meeting the objectives of TFOSP and upgrading the industry's oil spill response state-of-preparedness.

The total cost of implementation over the next five years is approximately $13-15 million. The table below summarizes the costs for the offshore and onshore components, broken down by implementation plan working group. Known costs for individual programs are given in Tables A through I in Appendix 1. These represent costs identified to date. Some costs have not yet been quantified, and it is estimated that these may amount to $1-2 million. Others may arise as programs become better defined.

Working Group	Estimated Cost of Implementation
OFFSHORE	
Planning and Prevention	$205,000
Equipment	6,240,000
Training	275,000
Research & Development	2,450,000
TOTAL	$9,170,000

Working Group	Estimated Cost of Implementation
ONSHORE	
Planning	$200,000
Prevention	70,000
Equipment	3,300,000
Training	30,000
Research & Development	88,000
TOTAL	$3,688,000
GRAND TOTAL	**$12,858,000**

These estimated costs will be met by the responsible organization or corporation as identified in the Implementation Plan. They will appear as budget items in an organization's annual operating budget requests and will be met through CPA, IPAC or other appropriate funding agencies as part of normal operating procedures.

Section 5

Monitoring

Monitoring the Implementation of TFOSP Recommendations

Member companies of CPA and IPAC must accept the responsibility of being individually and collectively accountable to keep government and the public aware of the progress that industry is making on the implementation of the TFOSP recommendations.

Monitoring the progress of implementation is also an important issue for the industry. TFOSP showed government regulators that the industry could undertake critical self-assessment. To maintain this initiative, industry must be able to demonstrate the progress it makes putting TFOSP recommendations into effect. This requires a well-organized formal system for tracking the achievement of the industry in specific areas.

The monitoring processes to be adopted by the upstream industry will be developed separately by PROSCARAC (for the onshore member companies) and by the newly formed CPA Frontier Committee (for the offshore member companies).

Section 6

Conclusions

Conclusions

This report represents the next step in the process to bring the recommendations of TFOSP into effect. This plan has now been approved by the CPA Board of Governors and the IPAC Board of Directors, and the agencies responsible for the various components of the Implementation Plan have begun their work.

The Plan sets out clear objectives for these agencies and defines their roles in bringing the industry into a position of strength and increased preparedness to deal with oil spill incidents. The onshore and offshore groups of member companies are committed to developing complementary but separate monitoring processes. These will be the yardsticks against which industry, government, and the public will measure progress and evaluate the success of TFOSP in the future.

Appendix 1

Tables A – D Summary of Offshore Implementation Plans

Tables E – I Summary of Onshore Implementation Plans

TABLE A: Working Group on Offshore Planning and Prevention

TFOSP Recommendation	Implementation Procedure	Responsible Organization	Timing	Cost
Contingency Plans				
1 Companies should conduct assessments to identify anticipated manpower and other resources required to carry out prolonged and extensive oil spill response operations.	Develop a set of Guidelines for oil spill contingency plans under the CPA Code of Practice.			
	• Consult with government to identify need and procedure.	CPA	1990/91	
2 All key positions in contingency plans should have qualified, alternate/relief members identified.	• Contract consultant to prepare oil spill contingency plan model for discussion with industry, government and public interest groups.	Managed under the auspices of CPA	1990/91	$25K
3 For ongoing and/or extensive response operations, appropriate plans for delegation of authority, responsibility and tasks must be developed.	• Conduct industry/government/public interest groups joint review leading to Guidelines preparation.	Managed under the auspices of CPA	After model preparation & industry approval.	$30-40K
4 Contingency plans should be tested on a regular basis in company-simulated exercises involving all response team members. The exercises should focus on realistic scenarios.	• Prepare Guidelines and release.	Managed under the auspices of CPA	Following industry/ government/ public review.	$10K

continued ...

TABLE A: Working Group on Offshore Planning and Prevention (continued)

TFOSP Recommendation	Implementation Procedure	Responsible Organization	Timing	Cost
5 Operators should implement "surprise" communications and mobilzation exercises. These should involve regulatory agencies and other operators where appropriate.	See previous page			
6 Operators should participate in "paper" exercises with regulators to test linkages between company contingency plans and government plans.	See previous page			
Communications Systems				
7 Communication lines (described in contingency plans) should be exercised regularly.	• Identify existing equipment and needs for new or additional communications equipment to meet oil spill emergency needs of the operation and the oil spill response activities over a short and prolonged spill.	Managed under the auspices of the CPA	1990/91	$50K
8 Communication plans should be developed or reassessed for each of the offshore operation areas to identify hardware systems and communications personnel requirements needed to support large-scale, sustained incidents.	• Contract a consultant to conduct an evaluation of existing and required communications equipment, facilities and manpower, and regulations and network restrictions.			

continued ...

TABLE A: Working Group on Offshore Planning and Prevention (continued)

TFOSP Recommendation	Implementation Procedure	Responsible Organization	Timing	Cost
Government Approvals				
9 Memoranda of understanding should be developed between appropriate government agencies to identify areas of responsibility and cooperation during spill response efforts. A single window approach for interacting with the government should be identified.	**Pre-approvals** – obtain national government policy and guidelines on pre-approvals and develop regional agreements on timely pre-approvals during a spill. • Industry/government discussions if necessary involving public stakeholders for decisions during a spill.	CPA Regional cooperatives	1990/91	Industry Assoc./Co-op member travel & accommodation.
10 For those situations/techniques where government approval is required, discussions should be held with the relevant government agency to obtain pre-approval wherever possible and assurances of swift decisions where pre-spill approvals are not feasible.	**Mutual Support Industry/Government** – establish industry/government policy committing to reciprocal spill response aid. • Establish a CPA/IPAC/CPPI senior management group to develop a policy and dialogue with government agencies.	CPA senior organization members	1990/91	Meeting travel and accommodation.
	Public Interest Group Cooperation – improve level of advice and support by public interest groups during spill events. • CPA to establish dialogue with various public interest groups to organize advice and assistance.	CPA to coordinate with individual operating companies with contingency plans.	1990/91	Meeting travel and accommodation.

continued ...

TABLE A: Working Group on Offshore Planning and Prevention (concluded)

TFOSP Recommendation	Implementation Procedure	Responsible Organization	Timing	Cost
Additonal Skilled Manpower				
11 To facilitate the efficient acquisition of additional experienced oil spill response manpower, a national directory of industry and contractor personnel should be developed and updated on a regular basis.	Contract a Consultant to prepare the directory.	Management through ESRF.	Proposal under ESRF review.	$50K
12 Through the use of CPA member companies, rapid spill response support (RSRS) listings should be established for each of the active offshore operating areas. These listings would be comprised of industry personnel with necessary expertise to respond to various key technical aspects of a major oil spill incident who could be contacted on short notice by a member company.	Contract a Consultant to prepare the directory. Assist companies to establish multi-company response teams and to arrange the exchange of personnel between companies and between companies and government.	CPA	1991	$30K

TABLE B: Working Group on Offshore Equipment

TFOSP Recommendation	Implementation Procedure	Responsible Organization	Timing Initiation/ Completion	Status	Monitor	Cost
13(a) Improve Response Capability - East Coast.	1. Conduct critical review of present response capability. 2. Define modifications required to improve efficiency of recovery, handling, storage and transfer of collected fluids using ESRI equipment. 3. Purchase equipment. 4. Training of personnel.	Eastcoast Spill Response Inc. (ESRI).	3-year capital acquisition and equipment modification program. Start: May 88 Finish: Dec 92.	• critical review completed. • equipment requirements being developed. • some equipment ordered.	6-month intervals by ESRI	$2MM
13(b) Improve Response Capability - Beaufort Sea	1. Conduct critical review of present response capability. 2. Determine response capability required. 3. Identify modifications and purchases required to achieve required response capability. 4. Purchase equipment and conduct modification. 5. Training of personnel.	Beaufort Sea Oil Spill Coop (BSOSC)	• 2-staged approach. • equipment by July 1990. • upgrade barge disposal capability by July 1991. Start: May 89 Finish: Sept. 91	• all equipment has been ordered and will arrive by July 1990 in Tuktoyaktuk. • study of barge disposal capability planned for summer of 1990, modifications in 1991.	6-month intervals by BSOSC	$4.2MM

continued...

TABLE B: Working Group on Offshore Equipment (continued)

Recommendation	Implementation Procedure	Responsible Organization	Timing Initiation/ Completion	Status	Monitor	Cost
14 Industry Coops and CCG work together to maximize equipment capability and effectiveness.	Establish Working Group to: • facilitate the dissemination of information on spill equipment. • standardize fittings, connections and adapters. • share in the development of operating procedures.	CPA	1990/91	No activity to-date.	Annually in August by CPA, Gov't.	Travel & accommo-dation.
15(a) Undertake study to determine availability of vessels on East Coast and pre-arrangements required to ensure immediate access.	• hire consultant to conduct study of support vessels, type capacity and location available world wide. • availability of tanker support • investigate arrangements for access.	ESRI	1990	• proposal submitted to ESRI Board of Directors for review and approval. • tanker study underway.	Progress Report Nov. 1990.	$10 K

continued...

TABLE B: Working Group on Offshore Equipment (concluded)

TFOSP Recommendation	Implementation Procedure	Responsible Organization	Timing Initiation/ Completion	Status	Monitor	Cost
15(b) Undertake study to determine availability of vessels in Beaufort and pre-arrangements required to ensure immediate access.	• hire consultant to conduct study of vessel requirements, vessel inventory, availability. • develop inventory of suitable vessels. • investigate vessel availability and pre-arrangement for access.	BSOSC	Start: July 90 Finish: Dec. 90	• need has already been identified in the Co-op.	Updated yearly by BSOSC	$10 K
16 Develop and maintain an inventory of spill response equipment available in Canada.	• hire a consultant to develop a database and delivery system in consultation with user groups. • assemble the data for input. • test a prototype version. • input the entire data set.	CPA	1990/91	• no activity to date.	Updated every 6 months.	$20 K

TABLE C: Working Group on Offshore Training

TFOSP Recommendation	Implementation Procedure	Reponsible Organization	Government /Industry Interface	Timing	Status	Cost
17 Each company should train an adequate number of employees in the various facets of oil spill response.	**Evaluate Existing Canadian and International Training Courses** • Collect Detailed Course Descriptions and Materials. • Interview Course Participants.	CPA	CPPI/PIRO	1991	Not started	$40K
18 Senior management should participate in more general crisis management training to assist in developing internal crisis management teams and plans.	**Case studies of Successful Training Strategies** • Survey Companies e.g., Chevron (Multi-Interest Teams), Esso/Texaco (NET System), Mobil (MOMSI).	CPA	CPPI/PIRO	1991	Not started	$30K
	Identify Team Skills and Training Needs • Review Response Plans for Structure • Develop Skill List	CPA	CPPI/PIRO/CCG	1991	Not started	$20K
	Company/Operator Responsibilities and Liabilities • Review Pertinent Legislation and Regulations	CPA	CPPI/COGLA/CCG/ CNOPB/CNSOPB	1991	Not started	$15K
	On-site Training Module • Collect Information from Companies' Experience, Existing Modules, etc.	CPA	CPPI/COGLA/CCG/ DND	1992	Not started	$100K

continued...

TABLE C: Working Group on Offshore Training (concluded)

TFOSP Recommendation	Implementation Procedure	Responsible Organization	Government/Industry Interface	Timing	Status	Cost
Recommendations 17 & 18 con't	**Training Monitoring** • Develop Training Standards • Develop Database for Training • Establish Reports and Monitoring Methods	CPA	CPPI/CCG/CNOPB/ CNSOPB	1990/1991	Not started	$70K

TABLE D: Working Group on Offshore Research and Development

TFOSP Recommendation	Implementation Procedure	Responsible Organization	Government/Industry Interface	Timing	Status	Cost (CPA)
19. Oil spill R&D program should be funded by industry and government in Canada at a higher funding level than has been the case over the last four years.	Implement TFOSP recommendations under the auspices of the CPA rather than through ESRF to ensure that the industry receives the credit it is due for funding and research.					
20. The Canadian oil and gas industry should focus on R&D that will improve the industry's capability in particularly weak areas, such as						
(1) Heavy Oil Recovery	1. Literature Review 2. Skimmer Tests 3. Chemical Additives	CPA	CPPI/EETD/CCG	2 years	Not started	$500K ($200K)
(2) Oil Spill Chemicals	1. Define Issues 2. Develop Test Methods 3. New Chemical Development	CPA	CPPI/EETD/Norway	4 years	Not started	$1.5M ($400K)
(3) Fate Models for Grand Banks	1. Review Existing Models 2. Define Physical-Chemical Processes 3. Upgrade Existing Models	CPA	EETD	2 years	Not started	$200K ($100K)

continued ...

TABLE D: Working Group on Offshore Research and Development (concluded)

TFOSP Recommendation	Implementation Procedure	Responsible Organization	Government/Industry Interface	Timing	Status	Cost (CPA)
Recommendation #20 continued 20(4) Oil in Ice Clean-up	1. Review Existing Methods 2. Laboratory Scale Studies 3. Field Studies	CPA	CPPI/EETD/Norway /CCG	4 years	Not started	$1.0M ($250K)
(5) Burning	1. Literature Review 2. Meso Scale Testing 3. Field Testing 4. Guidelines and Procedures	EETD/MMS	EETD/MMS/API/ CPPI/ CCG	3 years	Planning stage	$2.5M ($250K)
(6) Remote Sensing in Ice	1. Evaluation of System 2. Field Testing 3. Training in Field Use	EETD/MMS	API/CCG/CPPI	4 years	Development stage	$1.5M ($250K)
(7) Shoreline Clean-up Methods (new item)	1. Review of Literature 2. Review Exxon Valdez Experience 3. Design Research Program	CPA	EETD/CPPI/CCG/ API	6 years	Not started	$3.0M (500K)
(8) Effects Monitoring (new item)	1. Literature Review 2. Issue Identification 3. Program Development 4. Training of Field Staff in Sampling Methods	CPA	EETD/CPPI/CCG/ API	5 years	Not started	$1.5M ($500K)

TABLE E: Working Group on Onshore Planning

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
21 The CPA Oil & Salt Spill Contingency Plan Guidelines should be revised to include: • clear & concise policy statements in contingency planning. • a communications section to enhance effective notification and reporting procedures during an oil spill response. • include in contingency plans appropriate government organizational structures and encourage membership in "Alberta First Call" or equivalent groups. • management and field personnel must be involved together in annual contingency plan updates. • companies, large and small, must identify response procedures for all possible accident scenarios.	An environmental consultant should be retained to initiate revision of existing CPA Guidelines by an industry-coordinated: • Inter-Gov't Agency Workshop, and • Development of training videos.	CPA/PROSCARAC	CPA/PROSCARAC	1990	Not Started. Est. cost $100 K

continued...

TABLE E: Working Group on Onshore Planning (continued)

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
22 Companies should develop effective working relationships with local Gov't Agencies through regular communications.	Identify responsible Government Agencies in each province/territory that should be notified and/or invited to individual company/ cooperative training exercises.	CPA/PROSCARAC/Coops.	Not identified.	1990	Not started. No additional costs to be incurred.
23 The CPA should develop an industry newsletter which focuses on oil spill response and includes exercise dates, new developments, new equipment, case histories, reviews and reclamation planning.	Publish a quarterly newsletter; include items identified in Recommendation #23 and articles by Coop chairmen.	CPA/PROSCARAC	CPA/IPAC/CPA Committees/and Gov't for information.	1990	Planning underway. Cost $30 K per year.
24 Develop an active industry-initiated public awareness program on oil spill response preparedness.	Develop general brochures for distribution to the public and the media detailing industry's capabilities to manage environmental incidents and further introduce local industry cooperative organizations.	CPA/IPAC/PROSCARAC	Interaction with CPA Community Affairs Committee/PACE/IPAC.	1991	Not started. Cost $20 K per year.

continued ...

TABLE E: Working Group on Onshore Planning (concluded)

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
25 The company name, facility name, location and emergency contact phone number, clearly visible for non-company personnel, should be posted clearly at all facilities.	General letters to all CPA/IPAC members suggesting that consideration be given to including an emergency telephone number on existing identification signs at individual facilities.	CPA/IPAC	None.	1990	Not started. No additional costs to be incurred.
26 A national directory of trained industry and contractor personnel should be developed and made available to response organizations to provide organizations with backup during major spill incidents.	A consultant should be hired to put such a directory together to identify trained personnel by region and area.	CPA/IPAC/PROSCARAC /ESRF.	PACE/IPAC/Federal/Provincial and Territorial gov'ts.	1990	Proposals under review. Application made to ESRF by Offshore Implementation Committee. Estimated cost $50 K.

TABLE F: Working Group on Onshore Prevention

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
27 a. Companies should conduct regular environmental audits of their facilities to determine the potential spill sources so that preventative actions can be implemented.	The existing CPA Environmental Audit Guidelines need to be updated and to include a section on the construction, operation and maintenance of major pipeline systems, and related facilities. Companies should be encouraged to utilize the Guidelines and conduct regular reviews of their facilities.	CPA Environmental Committees: PEC and WCC Companies/ CPA/IPAC.	CPA/IPAC.	1990	Underway. Est. $30 K required to update the guidelines.
b. Potential projects must also be assessed to ensure the incorporation of best practical technology in the planning phase.	Require updating of Codes of Practice to incorporate new technology in the Planning phase. Companies should increase inspection and quality control to ensure incorporation of the best construction practices.	* CPA/IPAC/CSA Technical Committees. * Companies.	CPA/IPAC/ERCB/NEB/ CSA.	Contingent upon existing work being completed by industry committees. Forward the concerns and recommendations of the TFOSP group to the existing CPA/IPAC/CSA Technical Committees for action by fall 1990.	Ongoing. CPA cost $20K.

* Primary responsibility.

continued ...

TABLE F: Working Group on Onshore Prevention (concluded)

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
28. The industry should evaluate the current level of leak detection systems available and, where deficient, undertake a research and development program to improve efficiency.	- Update minimum standards for leak detection systems. - Develop more practical technology for small diameter/low flow pipelines. - A CSA Task Force on Leak Detection (Gas & Liquid) Operations Systems Integrity Subcommittee and CSA Pipeline are reviewing leak detection systems. - A CPA Technical Committee currently has a group reviewing leak detection systems.	• CPA/IPAC/CSA.	CPA/IPAC/ERCB/CSA.	- CSA report due late 1990. - Update CSA Code in future publication. - CPA Task Group timing unknown.	$20K
29. Companies should implement a process to review oil spill incidents and incorporate the results into improved operating procedures.	- Strike a CPA/IPAC Technical committee or hire a consultant to review current reporting practices with the view of developing procedures/reports that can be used by individual companies to assess spill sources and the action that can be taken to prevent them. - A letter be sent to companies reinforcing the need for an internal review to identify spill sources with the view to improving operating practices.	Companies/•CPA/IPAC Technical Committees/ CSA Standards.	CPA/IPAC.	- Complete 1991. - Existing industry infrastructure in place.	- Not started. - Costs unknown.

• Primary responsibility

TABLE G: Working Group on Onshore Equipment

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
30 Companies, cooperatives and industry associations should continue to work together to maximize equipment compatibility and effectiveness.	1. Detailed inventory updating required to identify deficiencies and incompatibilities of oil spill equipment throughout Canada. 2. Develop guidelines for the purchase and use of new equipment based on recommendations from point 1 above. 3. All equipment holders implement changes based on recommendations. 4. Update oil spill equipment inventory on an annual basis.	• PROSCARAC, Individual Coops, Coop Chairmen, consultant.	Coop Chairmen, company Emergency Response teams, appropriate Gov't Agencies Beaufort Oil Spill Cooperative, Blue Water Clean (PIMEC), Burrard Clean, ESRI, PACE, CPPI.	Staged through implementation, finalized by January, 1991. Contingent upon CPPI/ PACE schedule.	Some inventory is complete. More details required. CPPI & PACE have started similar project. 30 man days @ $500/d plus expenses (approx. 20K).
31 An evaluation of all equipment maintenance programs should be made to ensure effective operation.	Development suggested basic maintenance program for all equipment holders (this may be completed with Recommendation 30). Initiate follow-up equipment audit.	• PROSCARAC with assistance from consultant.	Coop Chairmen, individual companies, equipment manufacturers and suppliers, offshore Coops.	Concurrent with Recommendation 30.	Some planning work started by Coops, but more details required. $5,000 for developing Maintenance Program. $150,000 for conducting the audit.

continued

• Primary responsibility

TABLE G: Working Group on Onshore Equipment (continued)

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
32. Companies must evaluate the specific and remote locations for equipment requirements. In areas where there are shortfalls, individual companies and industry associations should supply minimum equipment packages ($35,000/package).	1. Conduct a Risk Assessment to identify shortfalls and recommend installation of equipment packages in remote locations. 2. Formulate letters to companies/ Coops advising them to look at "worst case scenario" and areas of remoteness, suggesting to companies/Coops to purchase equipment.	PROSCARAC	Individual Companies and Coops; appropriate Gov't Agencies.	January 1991.	Not started. 90 man days @ $500/d plus expenses (approx. 50K).
33 Purchase additional equipment capable of handling light condensate and heavy oil products ($3,000,000 over next 5 years).	Purchases contingent on PROSCARAC. Research & Development Sub-Committee results and TFOSP R&D Sub-Committee discussions.	* PROSCARAC	PROSCARAC , CPA/IPAC	Contingent upon R&D results.	Planning research in progress. $3 MM.
34 Evaluate the feasibility of establishing a 1-800 telephone service for contacting the OSCAR and Coops equipment in Western Canada.	1. Determine feasibility. 2. Evaluate usefulness of 1-800 service. 3. Develop procedures if the evaluation is positive.	PROSCARAC	Telephone systems, all other emergency 1-800 users, Gov 't Agencies, Coops and Industry.	September 1, 1990.	Number reserved. $310/month for first 5 hrs. (after that $52.70/hr.). Answering service @ $180/month (5 K/yr.).

continued

* Primary responsibility

TABLE G: Working Group on Onshore Equipment (concluded)

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
35 The National Emergency Equipment Locator System (NEELS) should be revitalized and upgraded on a regular basis.	Cooperate with Gov't to upgrade and maintain NEELS	Federal Gov't.	Gov't and Industry.	Dependent on Federal Gov't.	Cost - N/A.
36 Investigate: · Standardization of boom connectors. · Availability of tank truck hatch cone covers. · Small equipment packages for trucks. · Purchase of lake boom trailer by PROSCARAC. · Helicopter transportable equipment for remote locations.	1. Consider investigating these with Recommendation 30. 2. Determine availability, cost, installation of these materials. 3. Provide information to Coops/ Industry for possible purchase.	• PROSCARAC/Coop Chairmen.	Trucking industry, PROSCARAC Inc., PACE, CPPI, equipment manufacturers, retailers, helicopter companies, Gov't.	January 1991	Information is known. Cost indeterminable, although not deemed to be significant.

• Primary responsibility.

TABLE H: Working Group on Onshore Training

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
37					
a. Local oil spill equipment exercises should vary in their location, time of year, and type of equipment.	Oil spill Coops should submit a 5-year plan to Oil Spill Coordinating Committee and choose 5 different exercises.	Oil Spill Coops/ PROSCARAC.	Oil Spill Coops/Regional Spill Coordinating Committees/appropriate regulatory agencies.	1991 - 5-year plan submitted to Regional Spill Coordinating Committee.	Not started. No additional funding required.
b. Site specific equipment exercises should be held by individual companies for their own staff/hands-on training activity.	Companies should be encouraged by management to conduct periodic in-house spill exercises. Update the CPA Oil Spill Training Guidelines to reflect TFOSP recommendations.	PROSCARAC for the update.	ERCB/CPA/IPAC/PITS/ PACE/CPPI.	1991.	Not started. Estimated cost $5 K to update the Guidelines.
c. Training programs and equipment exercises should include members of the local emergency response agencies (police, fire & emergency measures).	Notification recommendations will be included in the revised CPA Oil Spill Training Exercise Guidelines. Coops to encourage local response organizations to attend exercise.	Oil Spill Coops / PROSCARAC	Fire Departments/RCMP/ Health & Safety Agencies, i.e., hospitals/ appropriate provincial agencies.	1991.	Several Oil Spill Cooperatives routinely involve response organizations in their exercises. No additional funding expected.

continued ...

TABLE H: Working Group on Onshore Training (continued)

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
38					
a. Companies must recognize that effective Oil Spill Training is not limited to equipment deployment exercises but also spill prevention, contingency planning, control point selection, community relations and environmental awareness.	The revised CPA "Oil Spill Training Exercise Guidelines" will identify spill related subjects and should be included as classroom topics for training exercises.	PROSCARAC	CPA/IPAC.	1991.	Not started. Cost see 37 b.
b. Companies must assess the oil spill response requirements of their personnel and provide the duties and responsibilities in the employee's job description.	Same as 39.	Same as 39.	Same as 39	Same as 39.	
39					
Certification criteria must be developed for oil spill response training. All field personnel (including drilling and trucking) and management should have certified training.	A task group will be activated to define certification, set standards, and identify the people that require certified spill training.	The Petroleum Industry Training Service will coordinate a certification committee that consists of CPA and IPAC membership.	CPA/IPAC/PITS Appropriate Gov't Agencies.	Certification committee start-up last quarter 1990/ first quarter 1991.	Not started. Estimated cost $15 K.

continued ...

TABLE H: Working Group on Onshore Training (concluded)

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
40 Companies must encourage their employees' participation in oil spill committees, cooperative activities and training duties. Time commitments should also be identified in the employee's job description.	Companies should include employee involvement in oil spill counter-measures activities, coop and training duties in its environmental stewardship process and include a designation of this responsibility in employees' job descriptions.	CPA/IPAC	N/A.	1990.	Not started. Estimated cost unknown.
41 Overview training programs on planning and response must also be developed for senior management.	Periodic information seminars should be organized for senior management that addresses Corporate response strategies. Each seminar should be hosted by a senior executive from a CPA/IPAC member company.	PROSCARAC/CPA/IPAC members.	N/A.	1991.	Not started. $10 K - Guest speakers, etc.

TABLE I: Working Group on Onshore Research and Development

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
42 Guidelines and procedures must be developed for:					
• Heavy Oil	A research project is required to evaluate existing techniques and new concepts for containment of heavy oil spilled into moving water. Phase II will look at recovery techniques based on the results of the first phase.	PROSCARAC	• Esso Research Lab/Oil Spill Coop Area "V". • ERCB/Heavy Oil Operators. • Equipment Suppliers/ PROSCARAC.	Phase I Summer 1990 Phase II 1991.	• Not started. • Phase I scheduled for summer 1990. Phase I cost $40,000 gross; $10,000 net to CPA (PROSCARAC R&D) Balance by Area "V", Coop and Esso. • Phase II - no estimate of costs.
	A study has been initiated to synthesize existing research and experience to deal with spills of heavy oil/diluent blend. A report will be prepared for distribution to PROSCARAC membership.	PROSCARAC	ERCB/Heavy Oil Operators/Companies.	Project is underway	Follow-up research expected cost $5 K

continued ...

TABLE I: Working Group on Onshore Research and Development (continued)

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
42 con't • Shallow streams, fast flowing rivers, and moving ice conditions.	A review of existing techniques and any deficiencies is recommended to form a basis for identifying specialized or new equipment which could be added to the present fleet. A "brainstorming" workshop of approx. 30 experts is proposed. The results would form the basis for further research.	PROSCARAC	PROSCARAC Equipment Chairmen/OSCAR Custodians/Frontier Oil Spill Coops/PACE/CPPI.	Could be scheduled for first quarter 1991.	No action to date. Estimated cost $5 K
• Fast Flowing Rivers	To be addressed at "brainstorming" workshop. The session will develop a five-year research program for this priority area.	PROSCARAC	Oil Spill Coops/ OSCAR Custodians/PITS/ PROSCARAC/PACE/CPPI		
• Handling products with low flash points.	Procedures and Guidelines for worker and public safety, for response to condensate or gasoline spills, are to be prepared for the Coops.	PROSCARAC	CPA Safety Committee/ City Emergency Response Agencies/CWPA/CPA Pipeline Committee/ PACE/CPPI.	To be decided by PROSCARAC Equipment Sub-Committee.	No action at present. Estimated cost $10 K.

continued ...

TABLE I: Working Group on Onshore Research and Development (concluded)

TFOSP Recommendation	Implementation Procedures	Responsible Organization	Government Industry Interfaces	Timing	Status/Cost
42 con't • Cold weather equipment.	An oil spill exercise to be conducted on an ice-covered river. A report and video package will be prepared for PROSCARAC membership.	Oil Spill Coops "G" & "H"/PROSCARAC.	PROSCARAC/ERCB/PITS.	March 1990.	Exercise was held on March 8&9, 1990. Estimated cost $20 K
	Consultant to assess the suitability of portable tanks for cold weather and report to PROSCARAC.	PROSCARAC plus consultant.	PROSCARAC/OSCAR Custodian/Arctic operators.	1991.	No action at present. Estimated cost $10 K
43 Evaluation must be made of the present communications equipment available through provincial telephone systems.	A consultant will be required to review communications equipment available from provincial telephone systems, report to PROSCARAC. Refer to Recommendation 34.	PROSCARAC	AGT/OSCAR Custodians.	Second Quarter 1990.	A toll-free Number (1-800-666-4OIL) has been reserved. Estimated cost $8 K
44 Encourage the re-establishment of dedicated equipment and training testing centres.	Compile an inventory of existing oil spill test facilities and assess their current and projected workload.	PROSCARAC	Omsett/Env. Canada/ EPA/Esso/NRC/Texas A+M.	Ongoing.	No action at present. No estimate of cost.
45 The CPA should encourage the collection and publication of oil spill statistical data on a uniform and timely basis.	Review gov't databases on oil and produced water spills to assess the opportunity for a standard format. Review databases annually.	PROSCARAC with the aid of a computer specialist.	BCMPMR/ERCB/SASK/ Env. Canada/ PROSCARAC	Second half 1990.	No action at present. Estimated cost $20 K